

**communications Issue**

G3\$675  
Rae

A CWC/I PUBLICATION  
APRIL 1985  
USA \$2.95 CAN \$3.50

# HOT CoCo

THE MAGAZINE FOR TRS-80 COLOR COMPUTER® AND MC-10® USERS.

## Mission Control *Track Satellites with Your CoCo*

**Inside**  
*201 Bulletin Board  
Systems You Can Call*

**Soup Up Telewriter-64**

**Low-Cost Modems**  
*More Bang for Your Buck*

**Head to Head**  
*Smart Terminal  
Programs Compared*





# AND IF YOU REALLY WANT TO EXPAND YOUR COLOR COMPUTER...

If you've been plotting with your friends, trying to slip your dad a few hints about your Color Computer wish list, here's a suggestion:

Just ask for one program.

That's it. Just one. Just mention Zaxxon, Sega's exciting arcade-style game that puts you inside a daring space fighter. Or drop a few hints about Flip Side, an exciting educational game from Children's Computer Workshop—a division of the Sesame Street™ people.

## Dad Will Take It From There

And don't worry, that's all it will take.

Once Dad tries to out-fly Zaxxon or out-smart Flip Side, he'll be hooked. And now's the perfect time for Dad to get interested, because your nearby Radio Shack is filled with software and accessories perfect for your whole family.

We have a complete selection of software from Spinnaker, a

leader in thrilling educational software for children. And if you ever give her the chance, sis will love Facemaker (26-3166, \$29.95), a fun way to learn about the computer while creating colorful graphics, Fraction Fever (26-3169, \$29.95) and more.

From Walt Disney, we have exciting learning games with Mickey Mouse and Donald, including Mickey's Alpine Adventure (26-2534, \$34.95), a fun way to learn about vowels, consonants and the rules of





# ...ASK DAD FOR JUST ONE PROGRAM. HE'LL GET CARRIED AWAY!

spelling, and Telling Time with Donald (26-2530, \$34.95).

Of course, there are always the best in arcade-style games to choose from, including Androne (26-3096, \$19.95), pitting you against Data Bugs inside your computer, and Color

Backgammon (26-3059, \$17.95), the classic game of skill adapted for your Color Computer.

## Software for Dad, Too!

Dad can choose Color SCRIPSIT® (26-3105, \$34.95), a powerful home word processing program with advanced features, and Personal Finance II (26-3106, \$34.95), perfect for home budgeting and financial graphing. And it's not all work and no play. Our new Trivia Fever (26-3295, \$29.95) is fun for the whole family.

## Add Accessories for Powerful Performance

Dad's sure to be tempted by our selection of convenient accessories, too, including the new TRS-80 Graphics Touch Pad (26-1185, \$59.95). Use it with your

software to make color graphics at a touch, or use it with games as a fast-action game paddle. We have printers, disk drives, joysticks, cassette recorders—even our Color Mouse—to tempt Dad, too.

## Drop a Hint Today

Don't wait! Let Dad know how easy it is to expand your Color Computer into a powerful home system and an educational learning tool. And tell Dad that Radio Shack honors six major credit cards, too!

**Radio Shack®**  
**The Technology Store™**

A DIVISION OF TANDY CORPORATION

Circle Reader Service card #4

Prices apply at Radio Shack Computer Centers and at participating Radio Shack stores and dealers. Sesame Street is a registered trademark of Children's Television Workshop. Walt Disney and Walt Disney characters are registered trademarks of Walt Disney Productions. Spinnaker is a registered trademark of Spinnaker, Inc. ZAXXON is a registered trademark of Sega, Inc. Trivia Fever is a registered trademark of Professional Software, Inc.





**Send Me a 1985 Computer Catalog!**  
Mail To: Radio Shack, Dept. 85-A-337, 300 One Tandy Center, Fort Worth, Texas 76102

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_



## DEPARTMENTS

<b>Digressions</b>	<b>5</b>
Pioneers among us. <i>Michael E. Nadeau</i>	
<b>Instant CoCo Directory</b>	<b>6</b>
<b>How to Use HOT CoCo</b>	<b>8</b>
<b>Letters to the Editor</b>	<b>10</b>
<b>The Basic Beat</b>	<b>16</b>
CHRS graphics and a farewell. <i>James W. Wood</i>	
<b>Mindbusters</b> 	<b>58</b>
Victorian Pegs. <i>Richard Ramella</i>	
<b>Reader's Forum</b> 	<b>61</b>
<b>CoCo for Hire</b>	<b>62</b>
Setting up a mailing-list business, part II. <i>Terry Kepner and Linda Tiernan</i>	
<b>6809 On Line</b>	<b>65</b>
Reducing connect-time costs. <i>Bobby Ballard</i>	
<b>Reviews</b>	<b>70</b>
VIP Database, CoCo Paint, VDOS SBasic, Double Driver, Wirdpro 2, and more. <i>edited by J. Scot Finnie</i>	
<b>Doctor ASCII</b>	<b>82</b>
Answers to your questions. <i>Richard E. Esposito</i>	
<b>Product News</b>	<b>88</b>
<i>edited by J. Scot Finnie</i>	
<b>The Learning Page</b>	<b>94</b>
Networking in the schools. <i>Nancy Kipperman</i>	

**Article submissions** from our readers are welcomed and encouraged. Inquiries should be addressed to: *HOT CoCo* Submissions Editor, 80 Pine Street, Peterborough, NH 03458. Include an SASE for a copy of our writer's guidelines. Payment for accepted articles is made at a rate of approximately \$50 per printed page; all rights are purchased. Authors of reviews should contact the *HOT CoCo* Review Editor, 80 Pine Street, Peterborough, NH 03458.




**Problems with Subscriptions:** Send a description of the problem and your current and/or most recent address to: *HOT CoCo*, Subscription Department, P.O. Box 975, Farmingdale, NY 11737.

**Change of Address:** Send old label or copy of old address and new address to: *HOT CoCo*, P.O. Box 975, Farmingdale, NY 11737. Please give eight weeks advance notice.

**Dealers:** Contact Ginie Boudrieau, Bulk Sales Manager, *HOT CoCo*, Pine St., Peterborough, NH 03458. (800) 343-0728.

**Problems with Advertisers:** Send a description of the problem and your current address to: Magazine, Rt. 101 & Elm Street, Peterborough, NH 03458. ATTN.: Rita B. Rivard, Customer Service Manager. If urgent, call 1-800-441-4403.

## ARTICLES

<b>Smart Terminals for the Disk Drive Set</b>	<b>20</b>
Compare the best disk-based terminal software for the Color Computer. <i>Jeffrey S. Parker</i>	
<b>Your First Modem</b>	<b>24</b>
You don't have to spend big bucks for the hardware to get on line. <i>Bobby Ballard</i>	
<b>Orbital Observations</b> 	<b>30</b>
Track satellites and space shuttles and plot their paths on your TV screen. <i>R. Dewain Poe</i>	
<b>Improve Your Telewriter-64</b>	<b>40</b>
Make your favorite word processor easier to live with. <i>Mick McGuire</i>	
<b>Electronic Learning</b>	<b>44</b>
Go to school without leaving home. <i>Paul Kimmelman</i>	
<b>HOT CoCo's BBS Phone Book</b>	<b>46</b>
More numbers than you can shake a joystick at. <i>Bobby Ballard</i>	
<b>Barrell Run</b> 	<b>49</b>
Drive a beer truck to capture runaway kegs. <i>Alan Blount</i>	
<b>Where's Tom?</b> 	<b>50</b>
Cruise down the Mississippi and explore the world of Tom Sawyer. <i>Richard Ramella</i>	
<b>Share and Share Alike</b>	<b>56</b>
Build an RS-232 switching device. <i>Mick McGuire</i>	

Cover photograph courtesy of NASA. Special effects: Professional Photographic Services, Nashua, NH.



This symbol indicates the program's placement on the Instant CoCo loader, available on cassette. See our Instant CoCo ad for details.

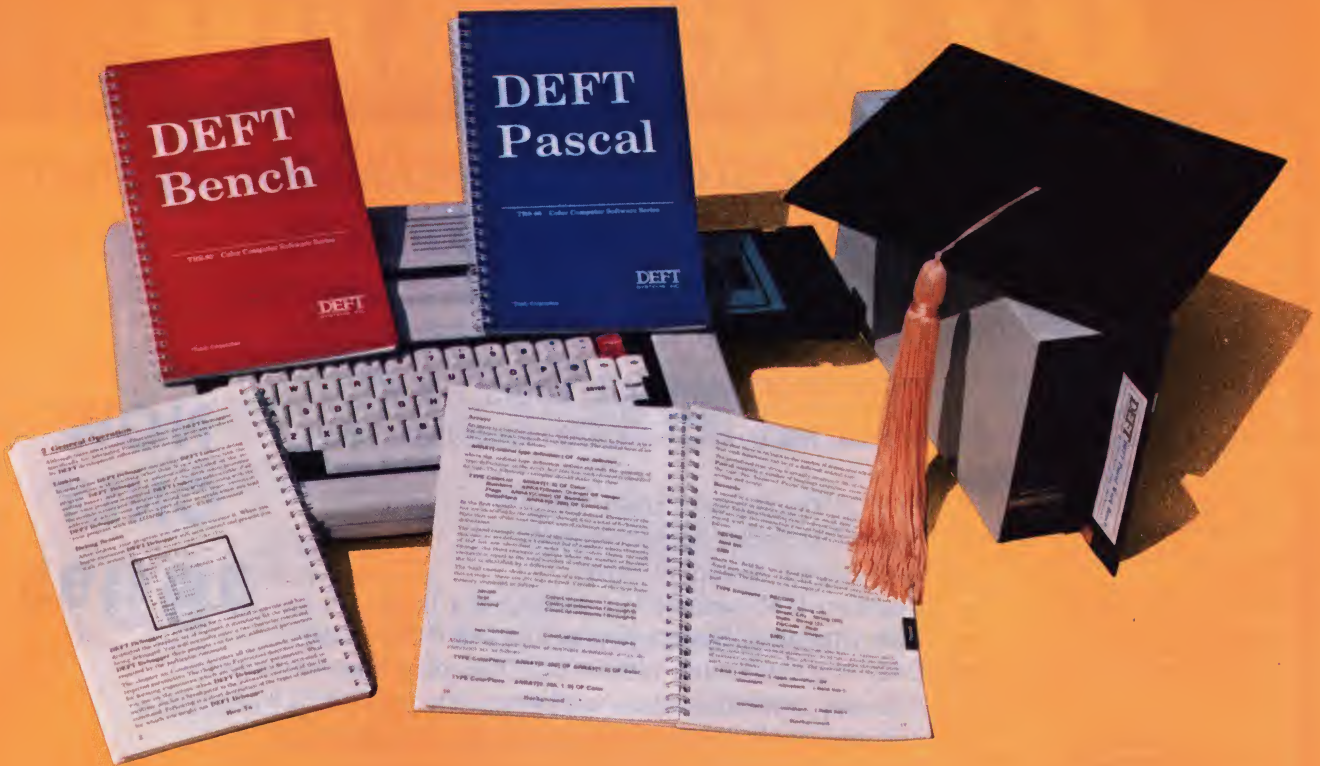
TRS-80 is a trademark of Radio Shack, a division of Tandy Corp.

**MPA**

*HOT CoCo* (ISSN 0740-3186) is published monthly by CW Communications, 80 Pine St., Peterborough, NH and additional mailing offices. Subscription rates in U.S. are \$24.97 for one year, \$38 for two years, and \$53 for three years. In Canada and Mexico, \$27.97—one year only, U.S. funds. Application to mail at second class postage rates is pending at Peterborough, NH and additional mailing offices. Nationally distributed by International Circulation Distributors. Foreign subscriptions (surface mail), \$44.97—one year only, U.S. funds drawn on a U.S. bank. Foreign subscriptions (air mail), please inquire. In South Africa contact *HOT CoCo*, P.O. Box 782815, Sandton, South Africa 2146. All subscription correspondence should be addressed to *HOT CoCo*, Subscription Department, P.O. Box 975, Farmingdale, NY 11737. Please include your address label with any correspondence. Postmaster: Send address changes to *HOT CoCo*, Subscription Services, P.O. Box 975, Farmingdale, NY 11737. Entire contents copyright 1985 by CW Communications/Peterborough, Inc.. For questions concerning your subscription and to place subscription orders, please call us toll free at 1-800-645-9559 between 9 a.m. and 5 p.m. or write to *HOT CoCo*, Subscription Department, P.O. Box 975, Farmingdale, NY 11737.



# Graduate With DEFT Pascal



As a result of the programming language requirement of the Advanced Placement (AP) Tests, Pascal has become the standard language used in High Schools and Colleges today. On the Color Computer, DEFT Pascal is the standard.

## DEFT Bench \$49.95

### DEFT Edit

Full screen editor

### DEFT Linker

(see DEFT Pascal)

### DEFT Lib

create and maintain  
program object libraries

R.S. Cat. #90-5001

### DEFT Debugger

debug Pascal machine  
programs symbolically

### DEFT Macro/6809

supports entire 6809  
instruction set,  
lets you define your own  
instructions

## DEFT Pascal \$79.95

### DEFT Pascal Compiler

complete Pascal language,  
generates machine  
language object

### DEFT Linker

combines multiple program  
objects into one binary  
program

R.S. Cat. #90-5000

## DEFT Pascal Workbench \$119.95

(DEFT Pascal And DEFT Bench Together)

R.S. Cat. #90-5002

All DEFT software and programs developed with DEFT software are BASIC ROM independent and use all of the memory in your Color Computer without OS-9. All you need is DEFT software and a TRS-80 Color Computer with Extended Disk BASIC, at least 32K of RAM and One Disk Drive. With DEFT Pascal (\$79.95) you will also need a text editor to write your programs. Software licensing arrangements are available for schools. Dealer inquiries welcome.

**DEFT**<sup>TM</sup>  
SYSTEMS, INC.

**Now Available  
By Express Order  
At Your Local  
Radio Shack Store!**

Orders and Sales Information 1-800-992-DEFT  
Technical Assistance 1-301-253-1300

Quantity of Each: — DEFT Pascal — DEFT Bench  
— DEFT Pascal Workbench

Method of Payment (check one) ☐ Check Enclosed  
☐ VISA ☐ Master Card ☐ COD

Account Number

Card Expiration Date  /

Signature

Name

Street

City  State  Zip

All orders are shipped UPS within 24 hours of receipt. Add 3% for shipping and handling; Maryland residents add 5% for State Sales Tax; add \$2.00 for COD.

**DEFT Systems, Inc.**  
Suite 4, Damascus Centre  
Damascus, MD 20872



# DYNACALC®

## CoCo's Best & Fastest Spreadsheet System

### ACCLAIMED BY THE EXPERTS

*"DYNACALC is my choice for a CoCo spreadsheet."*

*Dan Downard, RAINBOW, September, 1984.*

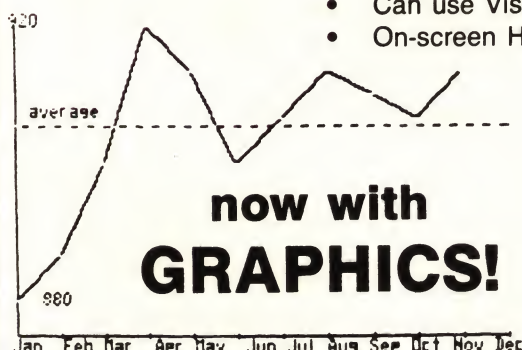
*"Eat your heart out, Lotus 1-2-3!"*

*Scott Norman, HOT CoCo, October, 1984.*

#### Built-in Features:

- 51 x 24 Display with Lower Case
- Super-fast Smart Screen Refresh
- Auto-Repeat Keyboard Driver
- Keysaver (TM) repeats last command x times
- Disk Operating System (works just like ROM DOS)
- Easy communication with BASIC/DOS programs
- Two-way communications with PRO-COLOR-FILE ★ Enhanced ★
- Outputs to ASCII Word Processors like Telewriter-64
- Fast 16-Digit Arithmetic with Scientific Functions
- Summation, Mean, and Standard Deviation Functions
- Logical Functions with String & Numeric Comparison
- String locate command to navigate large worksheets
- Sort full or partial worksheet by columns or rows
- Line, Bar, Hi/Lo/Close, Circle Graphs
- Full Graphics captioning and overlay facility
- Graphics Drivers for all popular Printers
- Joystick/Mouse Driver for Cursor Movement
- Works with any ROM versions, even JDOS
- 33k Available Worksheet Space
- Up to 256 Columns or 256 Rows
- Can use VisiCalc worksheets & training materials
- On-screen Help Messages

**NOW  
ONLY  
\$99<sup>95</sup>**



**now with  
GRAPHICS!**

#### FOR 64K DISK SYSTEMS

*available from*

#### COMPUTER SYSTEMS CENTER

42 Four Seasons Center #122  
Chesterfield, MO 63017  
(314) 576-5020



**NEW  
ADDRESS**

10 to 6 Mon.-Fri.

or your local DYNACALC dealer

Price US\$99.95

Outside North America add \$10 postage

DYNACALC Reg. U. S. Pat. Off.

PRO-COLOR-FILE is a trademark of Derringer Software

Telewriter-64 is a trademark of Cognitec

VisiCalc is a trademark of VisiCorp.

CANADA- CDN\$129.95

RGS MICRO INC.

759, VICTORIA SQUARE 405

MONTREAL H2Y 2J3

TEL.: (514) 287-1563

ORDER LINE ONLY ★ ★ ★

QUEBEC-ONTARIO-MARITIMES

800-361-5338

WESTERN CANADA 800-361-5155



Circle Reader Service card #506



**Publisher**

JEFF DETRAY

**Editor-in-Chief**

MICHAEL E. NADEAU

**Managing Editor**

MARK E. REYNOLDS

**Review/New Products Editor**

J. SCOT FINNIE

**Education Editor**

NANCY KIPPERMAN

**Technical Editors**

PETER PAPLASKAS,

GUIER WRIGHT,

KEITH JOHNSON (INSTANT COCO)

**Editorial Administration**

KIM McCORMICK

**Art Director**

DONNA WOHLFARTH

**Production Supervisor**

SUSAN HAYS

**Production Assistant**

SANDRA DUKETTE

**Advertising Director**

PETER MONTROSS

**Advertising Coordinator**

SUSAN WRIGHT

80 Pine Street

Peterborough, NH 03458

1-800-441-4403 or

1-603-924-9471

**Manufacturing Manager:**

SUSAN GROSS

**Typesetting Manager:**

DENNIS CHRISTENSEN

**Film Preparation Manager:**

ROBERT M. VILLENEUVE

**Darkroom Manager:**

NATHANIEL HAYNES

**Vice President/General Manager**

DEBRA WETHERBEE

**Vice President/Finance**

ROGER MURPHY

**Assistant to Vice President/GM**

MATT SMITH

**Assistant to Vice President/Finance**

DOMINIQUE SMITH

**Director of Circulation**

WILLIAM P. HOWARD

**Assistant Circulation Manager**

FRANK S. SMITH

**Direct & Newsstand Sales Manager**

RAINO WIREIN: 1-800-343-0728

**Director of Credit, Sales, and Collection**

WILLIAM M. BOYER

**Executive Creative Director**

CHRISTINE DESTREMPES

**Founder**

WAYNE GREEN

# DIGRESSIONS

## Pioneers On Line

Nearly one-third of you, our readers, are on line (communicating or accessing electronic databases and services by modem and computer). I find that an impressive statistic, and I'm happy to have so many pioneers in our audience.

We are in the Information Age, but it is still in its infancy. Computer communications are to this age what the steam engine was to the Industrial Revolution. It provides access to huge amounts of data almost instantaneously, and those currently involved in it will decide what this new medium becomes. They will be the first to know what is and isn't possible.

Until recently, communications by computer was available to only business, government, and educational institutions. The first microcomputers changed that, and the first low-cost home computers, including the Color Computer, really opened up hi-tech communications to the masses.

What will today's electronic services and hobbyist bulletin board services (BBSes) evolve into? Like in the early days of radio and TV, it is hard to project. You can see the beginnings of what could one day become commonplace, though. For example, banking on line seems like a sure thing, as does on-line shopping. You can already access encyclopedic information on hundreds of topics. Likewise, many magazines and newspapers will publish electronic editions.

It will be possible for people to create their own custom issues of periodicals from a database of articles, advertisements, and columns. And if the trend toward special-interest BBSes is any indication, it will be easy for small groups to publish newsletters and reach a large number of people.

Computer communications will become as much a part of everyday life as your telephone, TV, and radio—and just as transparent. TV was once considered a novelty—technically wonderful but of little practical use. The first consumers to buy TVs didn't have much to watch, but they were largely responsible for what TV is today.

Those of you with modems have a little more service than the early TV watchers did, but you deserve credit nonetheless. You are the ones who will determine what we all will download 10, 20, or 30 years from now. How does it feel to be a pioneer?—*Michael E. Nadeau* ■

HOT CoCo is a member of the CW Communications/Inc. group, the world's largest publisher of computer-related information. The group publishes 52 computer publications in 19 major countries. Members of the group include: Argentina's *Computerworld/Argentina*; Australia's *Australia Computerworld*, *Australian Micro Computer Magazine*, *Australian PC World and Directories*; Brazil's *DataNews* and *MicroMundo*; China's *China Computerworld*; Denmark's *Computerworld/Danmark* and *MicroVerden*; Finland's *Mikro*; France's *Le Monde Informatique*, *Golden (Apple)* and *OPC (IBM)*; Germany's *Computerwoche*, *Microcomputerwelt*, *PC Welt*, *Software Markt*, *CW Edition/Seminar*, *Computer Business* and *Commodore Magazine*; Italy's *Computerworld Italia*; Japan's *Computerworld Japan* and *Perso ComWorld*; Mexico's *Computerworld/Mexico* and *CompuMundo*; Netherlands's *CW Benelux* and *Micro/Info*; Norway's *Computerworld Norge* and *MikroData*; Saudi Arabia's *Saudi Computerworld*; Singapore's *The Asian Computerworld*; Spain's *Computerworld/Espana* and *MicroSistemas*; Sweden's *ComputerSweden*, *MikroData* and *Min Hemdator*; the UK's *Computer Management* and *Computer Business Europe*; United States: *Computerworld*, *HOT CoCo*, *inCider*, *InfoWorld*, *MacWorld*, *Micro MarketWorld*, *PC World*, *PC Jr. World*, *RUN*, *73 Magazine*, and *80 Micro*.



## Back Issues

Yes, back issues of *HOT CoCo* are available for all months. This list shows the features in each issue:

**June 1983**—The CoCo word processor; a serial-to-parallel interface project; and the adventure, Cavehunt.

**July 1983**—How to upgrade your CoCo to 64K; cure video RFI.

**August 1983**—Speech synthesis via software; get more colors; build a color monitor driver.

**September 1983**—Disk utilities; hi-res character generator.

**October 1983**—Animation techniques; ROM disassembly, part I.

**November 1983**—Nuclear submarine simulation; ROM-pack primer; banner printer.

**December 1983**—World capitals quiz program; talking spelling tutor; vocabulary-building program.

**January 1984**—Programs for the businessman and investor; ins and outs of database management.

**February 1984**—CoCo-aided circuit design; simulate Extended Basic in Color Basic; change your CoCo's vocabulary.

**March 1984**—How a disk stores information; create your own wordsearch puzzles; dental/medical bill balancer.

**April 1984**—Peripherals buyer's guide; how to shop for a disk drive; disk-fix utility; Lisp interpreter.

**May 1984**—OS-9 review; financial transactions tracker; homebrew spelling checker; CoCo Reversi game.

**June 1984**—Horse-racing and stock-market simulators.

**July 1984**—Do-it-yourself lowercase mod; variable cross-referencer; the game, Python.

**August 1984**—Basic-09 review; database manager program; graphics tutorials; hurricane tracker.

**September 1984**—Educational software buyer's guide; typing-teacher program; the CoCo as a marketing aid.

**October 1984**—A collection of sounds for your CoCo; how to make programs auto-execute; printer spooler.

**November 1984**—Personal money manager program; disk-file protection utility.

**December 1984**—Disk-drive timer; disk drive maintenance tips; full-featured text-editing program.

**January 1985**—Spreadsheet program; stock-charting program; make fancy graphics with your printer.

You'll also find in each issue our regular features, reviews of popular software and hardware, and dozens of useful programs that are yours for the typing in.

Each back issue costs \$3.50 plus \$1 shipping and handling. On orders of 10 or more back issues, there is a flat \$10 shipping fee. Send your orders to *HOT CoCo*, Attn. Back Issue Orders, 80 Pine St., Peterborough, NH 03458. ■

## Instant CoCo Directory

Instant CoCo is a cassette tape containing the major programs from this issue of *HOT CoCo*. Its purpose is to save you the time and effort of typing long program listings into your Color Computer. You simply load the programs from the Instant CoCo tape using your cassette recorder. The instructions for operating each program are found in the corresponding *HOT CoCo* article. Both Basic and Assembly-language programs are included on the tape.

The Instant CoCo symbol appears in *HOT CoCo*'s table of contents and on the program listing for each article with a listing used on the Instant CoCo tape. As an added extra, each tape also contains a never-before-published Bonus Program, complete with instructions.

The directory below lists all programs included on this month's Instant CoCo cassette. Shown first are the name of the article with a descriptive blurb and its author, followed by the page number in this issue where the article appears. Next comes the file name of the program on cassette. Finally, there is a brief description of the Color Computer system needed to run the program.

This month's Instant CoCo cassette is available for just \$11.47, including postage and handling, from *Instant CoCo*, 80 Pine St., Peterborough, NH 03458. See our ad on p. 64 for more details.

### Side A

Article Name/Author/Description	Page #	File Name	System
Copyright Statement	---	TITLE	All
Orbital Observation/Poe Track satellites and plot their paths on a graphic map.	30	WORLDMAP SAT-TRK	16K ECB 16K ECB
Where's Tom?/Ramella Explore Tom Sawyer's world on your CoCo.	50	TOM	16K ECB
Mindbusters/Ramella Move all the pegs to the other side in the fewest moves.	58	PEGS	16K ECB

### Side B

Reader's Forum/Toon Set parameters on your DMP-200 automatically.	61	DMP-200	16K ECB DMP-200
Barrel Run/Blount Catch the runaway barrels.	49	BARREL	4K CB

### \*\*\*Bonus Programs\*\*\*

Maze Master/Medlock Create mazes for you and your friends to solve.	---	MAZE	16K ECB
Four Ways to Easy Programming/Jennes Add single-keystroke commands, a program renumbering utility, and a variable searcher to your toolbox.	---	EASYTYPE OVERLAY RENUM SEARCH	16K ECB 16K ECB, CGP-115 4K CB 4K ECB

CB = Color Basic, DECB = Disk Extended Color Basic, ECB = Extended Color Basic,  
(m) = machine-language program (use CLOADM)



From Computer Plus to YOU ...  
**PLUS after PLUS after PLUS**



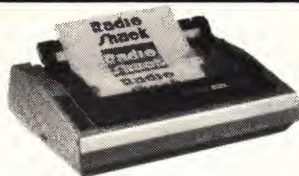
Model 100 8K \$339  
 Model 100 24K \$510



Color Computer II  
 w/16K Ext. Basic \$135  
 w/64K Ext. Basic \$179



Tandy 1000 \$999  
 Tandy 1200 \$2595



DMP120 \$385



Color Computer Disk Drive  
 Drive 0 \$289 Drive 1 \$220



DWP210 \$489  
 DWP510 \$1295

**BIG SAVINGS ON A FULL COMPLEMENT OF RADIO SHACK COMPUTER PRODUCTS**

**COMPUTERS**

Model 4 Portable	970
Model 4	970
Model 1000	999
Model 1200	2595
Model 2000 2 Drive	2299

**MODEMS**

Hayes Smartmodem II	215
Radio Shack AC-3	125
Radio Shack DC Modem I	89
Radio Shack DC Modem II	160
Radio Shack DC Modem 2212	315

**PRINTERS**

Radio Shack TRP100	229
Radio Shack DMP105	160
Radio Shack DMP110	305
Radio Shack DMP430	660
Radio Shack CGP220 Ink Jet	545
Silver Reed EXP500 D.W.	430
Star Gemini 10X	289
Star Gemini Powertype	345
Panasonic P1091	315
C. Itoh Prowriter 8510	320
Okidata and Epson	CALL

**ETC.**

Radio Shack Drive Controller	119
Radio Shack Ext. Basic Kit	39.95
PBH Ser/Par Conv.	69
64K Upgrade Kit	49
Radio Shack Deluxe Keyboard	35.95
HJL Keyboard	79.95
Radio Shack CCR-81 Recorder	52
Radio Shack Del. Joystick (each)	35.95
Radio Shack Joysticks (pair)	22
Video Plus (monitor adapter)	24.95
Video Plus IIC	39.95
Amdek Color 300	265
Amdek Video 300 Green	145
Amdek Video 300 Amber	159
Taxan Color 220 Monitor	245
Taxan 115 Green	125
Taxan 116 Amber	129
Radio Shack VM-2	139

**SOFTWARE**

The Sailor Man	29.95
The King	26.95
Buzzard Bait	27.95
Worlds of Flight	29.95

(Tape Version)

Colorpede	29.95
Juniors Revenge	28.95
Pac Attack	24.95
Block Head	26.95
Lunar Rover Patrol	24.95
Lancer	24.95
Typing Tutor	23.95
Galagon	24.95
Scott Adams Adventures	19.95
Sea Dragon	34.95
Colorcome	49.95
Telewriter 64	49.95
Deft Pascal (disk)	79.95
Elite-Calc	59.95
VIP Writer (tape & disk)	69.95
VIP Calc (tape & disk)	69.95
VIP Terminal (tape & disk)	49.95
VIP Database (disk)	59.95
VIP Integrated Library (disk)	149.95
Graphicom (disk)	29.95

Order any 2 software pieces listed and take 10% off their listed price. All Radio Shack software 10% off list. Send for complete list.

Circle Reader Service card #18

**CALL TOLL FREE  
 1-800-343-8124**

- LOWEST POSSIBLE PRICES
- BEST POSSIBLE WARRANTY
- KNOWLEDGEABLE SALES STAFF
- TIMELY DELIVERY
- SHOPPING CONVENIENCE



**computer  
 plus**  
 P.O. Box 1094  
 480 King Street  
 Littleton, MA 01460  
 SINCE 1973

IN MASSACHUSETTS CALL (617) 486-3193



# How to Use *HOT CoCo*

Each month, *HOT CoCo* provides program listings for you to type into your Color Computer and use. If you are new to computing, read this page for advice that will help you avoid problems often encountered when entering programs manually.

## Know the Basics

Before you begin, you should be familiar with the basic operation of your Color Computer. Read the manual and make sure you understand how to enter a program line, save a program to cassette or disk, and make corrections to a program line. The Color Computer manuals are well written, and you will enjoy your CoCo much more if you've read them.

## Check the Requirements

The first thing you should do is make sure that the program you want to enter will run on your version of the Color Computer. You need to know the memory requirements, the type of Basic used (Color, Micro Color, Extended Color, or Disk Extended Color Basic), what peripherals might be needed, and in some cases whether a particular ROM version is needed. (See below for an explanation of the different ROMs.)

All this information is provided in the System Requirements box included with each article that has a program listing. This box gives the minimum requirements to use the program. If, for instance, the box reads "16K RAM, Color Basic," the program should also work on 32K or higher, Extended or Disk Extended Color Basic CoCos.

Once you've established that the program will work on your CoCo, read the article thoroughly. Sometimes it will include information vital to typing in the listing.

## What You See Is What You Get

We print all Basic program listings 32 characters across—just as they appear on your video screen. Type in the listing exactly as it appears in the magazine, being particularly careful with spaces and punctuation. If you do this, the 32-character format will aid in proofreading what you have typed in by letting you match beginning and ending characters on corresponding lines. If you have a line that ends on a character other than what appears in the magazine, go back and check for a typo.

## Common Errors

Some characters are easier to confuse than others when you are typing in program listings. And since your Color Computer interprets everything literally, the smallest error can crash a program. Below is a list of characters commonly confused with one another:

zero and the letter O  
colon and semicolon  
lowercase l and the numeral one  
uppercase B and the numeral eight

## Weird Characters

The up arrow indicates exponentiation on the Color Computer. Unfortunately, most printers do not have an up arrow. Our printer prints a caret (^) instead. Be sure to type an up arrow in place of all carets in Basic program listings.

## Assembly-Language Listings

*HOT CoCo* often publishes programs written in Assembly language rather than Basic. Assembly listings "talk" to your computer on a much more direct level; Basic requires some translation before your CoCo can execute it. Therefore, Assembly works much faster than Basic. Unfortunately, it is more difficult to learn Assembly-language programming than Basic programming.

But you do not need to know how to program in Assembly to use these programs. You do need, however, something called an editor/assembler. An editor/assembler allows you to manually enter an Assembly listing, and then it "assembles" it into a form that your CoCo can execute. Since editor/assemblers can cost as much as \$80, you probably don't need one unless you want to learn Assembly-language programming.

It is possible to hand assemble an Assembly listing, but this is a tedious process that is best left to someone with a little experience with Assembly programming. It also requires a short Basic routine that prepares your CoCo for hand assembly.

We convert some Assembly programs to Basic DATA statements and include a short Basic routine to load and execute the DATA statements. This gives you a program that you can type in just like a Basic listing, yet it operates much like one written in Assembly.

If you want to run one of *HOT CoCo*'s Assembly listings, but it hasn't been converted to DATA statements and you do not own an editor/assembler, check to see if the program is included on our Instant CoCo cassette. All Assembly programs on Instant CoCo are in assembled form, meaning you can load and execute them immediately.

## Speaking of DATA Statements

Since DATA statements often consist of numbers only, it is easy to make a mistake typing them in. One wrong number can crash the program or lock up your machine. When this happens, the only way to recover is often to turn off the computer for a few seconds and then turn it back on. Of course, this wipes out your program in memory.

To avoid this, always save what you have typed in before running it. That

way, if you did make a mistake, you can load the program from tape or disk to look for the error, rather than retyping the entire listing.

One last thing about DATA statements: Error messages that occur due to a mistyped DATA statement line will refer to the corresponding READ statement line earlier in the program. Yet it is the DATA statement that is incorrect.

## If All Else Fails

If you cannot get your typed-in listing to run after checking and double-checking for typos, you can ask us for help. Send a detailed description of your problem along with any error messages given. Ideally we'd like a printout of what you typed. Send a self-addressed, stamped envelope for the fastest reply. Sorry, but we cannot help you if you have modified the original program in any way. Write to *HOT CoCo*, attn. Technical Editor, 80 Pine St., Peterborough, NH 03458.

## Different ROMs

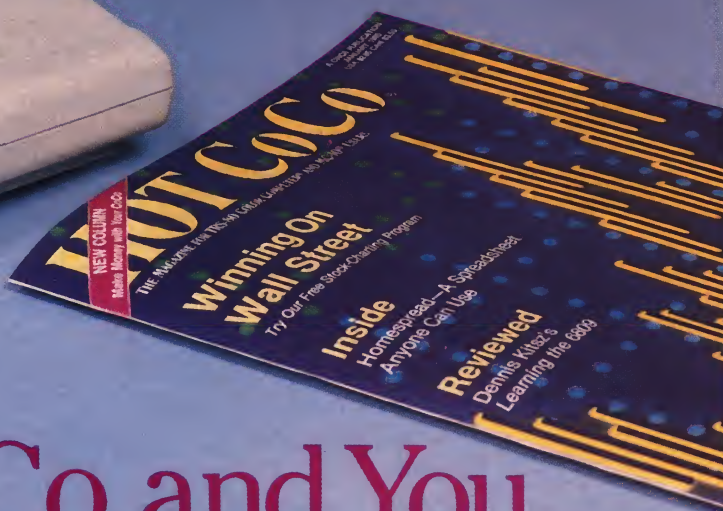
Radio Shack has updated the Basic ROMs in the Color Computer several times since it was introduced. Below is a list of the ROMs and the problems and benefits you might encounter with each one:

- Color Basic 1.0—Cannot fully use the 64K upgrade and has only a 7-bit serial printer routine, which inhibits sending graphics data to a printer.
- Color Basic 1.1—Fully supports 64K and has an 8-bit serial printer routine for graphics.
- Color Basic 1.2—Executes code faster than previous versions, but changed the way the ROM reads the keyboard. This makes some software written for the older ROMs incompatible with the 1.2 ROM. There is a simple fix, which *HOT CoCo* incorporates into every program in which this problem is encountered.
- If you don't know what Color Basic ROM version you have, type EXEC 41175 after you first turn on your computer. The ROM version will be printed on the screen.
- Extended Basic 1.0—Has bugs in the PCLEAR, PRINT USING, and DLOAD statements.
- Extended Basic 1.1—Fixes the above-mentioned bugs.
- Disk Basic 1.0—This is in the disk controller cartridge used with the grey CoCos and grey disk drives. The 1.0 Disk ROM is incompatible with the white 64K CoCos and CoCo 2s.
- Disk Basic 1.1—Works faster than 1.0, but you can use the 1.1 Disk Basic controller with the older, grey CoCos. Also, many routines have been moved, making some programs written using the 1.0 Disk ROM incompatible with the 1.1 ROM. (See "A Quick Fix for Your Disk ROM," by Mike Meehan, *HOT CoCo*, February 1985, p. 44, for a utility that overcomes this incompatibility in most cases.)■





# A Brilliant Team



## HOT CoCo and You.

Those with the latest and most thorough information run their computers with confidence. Those without it are run ragged with frustration.

Color Computerists who've gained the upper hand read **HOT CoCo**, the monthly magazine that unlocks the full potential of TRS-80\* and MC-10\* Color Computers.

**HOT CoCo's** inside stories can make you and

your Color Computer a brilliant team. By subscribing to **HOT CoCo** for the low one-year price of \$24.97, you'll get information-packed issues at 30% off the cover price!

- **HOT CoCo** specializes in presenting time-efficient, money-saving programs for business, home, and school. Easy to use, and practical!
- Novice and expert users alike will benefit from **HOT CoCo's** tips and tutorials. Sharpen your skill. Watch your CoCo become more versatile!
- Graphics? Discover how easy it is to create your own!
- Games? **HOT CoCo's** wide assortment provides hours of entertainment and challenge for the entire family.
- Looking to gain an advantage by adding more hardware or software? Read our reviews first—decide for yourself what's worth its weight in gold, and what isn't worth a hill of beans.

Everything on the pages of **HOT CoCo** can bring out the best in you and your Color Computer. A wealth of knowledge—for an entire year—for **just \$24.97!**

Order your subscription today by filling in the coupon, or by calling TOLL FREE 1-800-258-5473. In New Hampshire, call 1-924-9471.

☐ **YES!** I want to be part of a brilliant team...

Send me 12 issues of **HOT CoCo** for the low price of \$24.97. I'll save 30% off the newsstand price.

☐ Payment enclosed    ☐ Bill me

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Canada & Mexico \$27.97, one year only, US funds drawn on US bank. Foreign surface \$44.97, one year only, US funds drawn on US bank. Foreign airmail please inquire. Allow 6 to 8 weeks for delivery.

**HOT CoCo • PO Box 975  
Farmingdale, NY 11737**

354B4T

\* TRS-80 and MC-10 Color Computers are registered trademarks of the Radio Shack Tandy Division of Tandy Corp.



# Letters to the Editor

Send your letters to *Letters to the Editor*, HOT CoCo, 80 Pine St., Peterborough, NH 03458.

## Night Racer Update

In Listing 1 of James W. Wood's "Night Racer" (*HOT CoCo*, November 1984, p. 54), line 2 PCLEAR1 should be inserted to leave enough memory for line 3 CLEAR 200,7617. Also, line 200 of Listing 3 should read For A = 1024 TO 1535 instead of FOR A = 1024 TO 1583.

Nathan Woods  
Wickliffe, OH

## For the Record

The Datalist review (*HOT CoCo*, February 1985, p. 87) contains information I would like to clarify. Reviewer John Ogasapian states that the edit mode requires you to "reenter a record to correct or edit a single field once you have exited it." Actually, the only fields needing reentry are those you are changing; you can skip all other fields in the record by merely pressing the enter key. The information in fields you skip over in this manner is unchanged from the way you originally typed it.

The review also does not point out that you can sort the records in the file on any character within the record—even a midfield character. This is useful for fields that contain multiple sets of information. Any one of the fields might contain one or more subfields that the sort routine can also access; it is not limited to "intact field" sorts.

A new revision of the program is available that permits totaling of some or all fields for report purposes. The disk version lets you name files to be saved or loaded and includes a short utility that lets you transfer cassette files to disk. It can also save and read cassette files.

Arlin Karger (*Datalist* author)  
Moorhead, MN

## Good Work, Anna

"Money" thanks to Anna Reeves and her Personal Money Manager program (*HOT CoCo*, November 1984, p. 36). My son at Georgia Tech sends his back issues of *HOT CoCo* to me at Aramco in Saudi Arabia. The easy use of Anna's program is a tribute to her programming ability. I learned the "menus" programming technique from entering the 178 statements into my 64K unit.

Mark Squires  
Dhahran, Saudi Arabia

## Hurricane Tracker In Color

Congratulations on an excellent magazine. I've been teaching 6th grade for 19 years and I have found an excellent "teacher's aid" in *HOT CoCo*. I've only had my CoCo 2 since last spring and am constantly amazed by its capabilities.

I used "Hurricane Tracker" (*HOT CoCo*, August 1984, p. 80) in my classroom to reinforce our social studies lessons in latitude and longitude. I was able to get exciting, eye-catching colors on the land masses by making the following changes:

```
240 IFC$="C"AND F=0THEN GOSUB150
00:PAINT(0,0),,0:PAINT(136,0),,0
:PAINT(170,191),,0:PAINT(130,116
),,0:PAINT(160,130),,0:PAINT(124
,132),,0:PAINT(185,131),,0:PAINT
(220,179),,0
250 IFC$="G"THEN GOSUB100ELSE IFC
$="L"THEN GOSUB110ELSE IFC$="S"
THEN GOSUB120ELSE IFC$="A"THEN GOSUB130
ELSE IFC$="Q"THEN GOSUB90ELSE
IF C$="I" THEN GOSUB 5081
5080 PLAY"T5;04;ABCDDCBA"
5081 CLS:PRINT@42,"instructions"
```

```
5082 PRINT@98,"HIT":PRINT@110,"T
O":PRINT@162,"A":PRINT@170,"ADD
OR CREATE DATA":PRINT@194,"C":PR
INT@202,"COLOR LAND MASSES":PRIN
T@226,"G":PRINT@234,"DISPLAY GRI
D MARKS":PRINT@258,"L":PRINT@266
,"LOAD DATA FROM TAPE"
5083 PRINT@290,"Q":PRINT@298,"CL
EAR DATA FROM MEMORY":PRINT@322,
"P":PRINT@330,"PLOT STORM":PRINT
@354,"S":PRINT@362,"SAVE DATA TO
TAPE":PRINT@386,"I":PRINT@394,"
RETURN TO INSTRUCTIONS":PRINT@41
7,"<SPACE>":PRINT@426,"REDRAW SC
REEN"
5084 PRINT@452,"HIT ANY KEY TO C
ONTINUE"
5085 JJ$=INKEY$:IF JJ$=""THEN 508
5
15000 N=RND(255):POKE178,N:RETUR
N
```

Hitting the C command two or three times will often create a further mixture of colors. The added colors made an incredible difference to my students.

Due to the many commands in the "Hurricane Tracker," I set up an instruction screen in line 5080 by removing the return from the line. I also added an I command to return to instruction screen at any time. I used inverse letters for eye-catching contrast.

I believe these changes enhance an excellent educational program. Keep up the good work. I am a *HOT CoCo* subscriber and it was one of the best things I ever did.

James A. Tatarka  
Youngstown, OH

## Helping The Handicapped

Of all the good work computing can do for the world, perhaps the most laudable is freeing the handicapped from the confines of their physical limitations. This was brought home to me recently when the parents of a boy with cerebral palsy wrote to ask for a program I had published in *HOT CoCo*.

Their son had begun using a CoCo, and they were seeking software for him. I sent them some educational software, but I was unable to direct them to a good source of computer materials specifically designed for the handicapped.

I would appreciate it if readers could send me any information about CoCo-compatible hardware or software for the handicapped. I'm also interested in knowing of organizations devoted to computing for the handicapped.

I'll send whatever information I receive to my new friend and will also submit it to *HOT CoCo* for more general distribution.

David Meredith  
Department of Mathematics  
San Francisco State University  
1600 Holloway Ave.  
San Francisco, CA 94132

*HOT CoCo will publish whatever information you come up with, David. We will also publish a three-part series, beginning with our July issue, describing how to build a person-assistance system around your Color Computer. The system will allow a disabled person to turn appliances or lights on and off, use a telephone, and compose text on the CoCo.—eds.*

## Weird Bug

I want to thank Jim Kalac from Boring, OR, for his repeat-key modification to Telewriter-64. I have found a weird bug in the modification, that being the function settings such as justification, font, and characters per line are disabled. I got around this bug by imbedding commands in the text. I would like to know how to slow down the speed of the repeat, as I sometimes get unwanted multiple characters.

There have been many repeat-key modifications in several publications in the past couple of years. Would it be possible for *HOT CoCo* to list all these together, and to do the same for other programs as well?

Thanks again, Mr. Kalac.

John Gordon Reid  
Woodside, NY

*To adjust the repeat delay, change 1F in line 400 to 7F or a higher hex value.*

*We will be publishing more modifications for popular commercial software. In fact, you will find an article in this issue, p. 40, on more Telewriter-64 enhancements.—eds.*



Another Price Breakthrough from Radio Shack!

# A VERSATILE HOME PRINTER FOR ONLY \$200

Now you can get the versatility and convenience of a full-size printer at home—without a full-size price tag.

For just \$199.95, you can take home our new DMP-105 dot-matrix printer for high-speed printouts on full-size fanfold and sheet paper.

## High-Speed Performance and Bit-Image Graphics

The DMP-105's bi-directional print head prints 80 characters per second and makes the DMP-105 ideal for data processing, program listings and general-purpose use.

And the DMP-105's 30 special block graphics characters or its bit-image graphics mode make it easy to insert charts, diagrams and other graphics into your text.

## Three Print Modes for Personalized Text

The DMP-105 even lets you choose condensed, normal and elongated printing modes. An adjustable tractor feed lets you use 4" to 9 1/2" fanfold paper, and a friction platen lets you use single letter-sized sheets easily.

The DMP-105 includes parallel and Color Computer-compatible

serial interfaces, and prints an original, plus one copy.

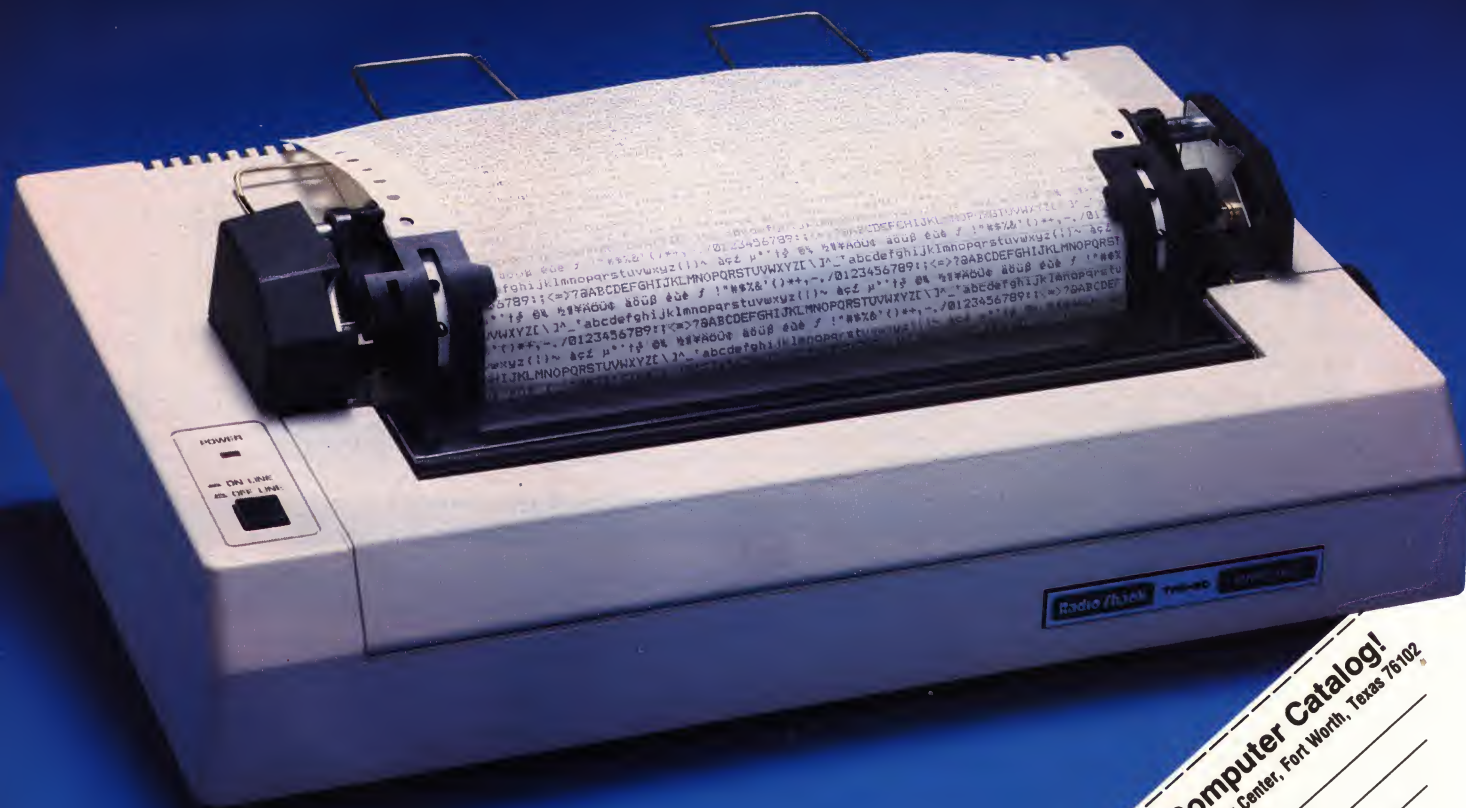
## See It Today

Just visit your nearby Radio Shack Computer Center or participating store or dealer for a demonstration of our affordable new DMP-105.

**Radio Shack®**  
**The Technology Store™**

A DIVISION OF TANDY CORPORATION  
Circle Reader Service card #4

Price applies at Radio Shack Computer Centers and at participating stores and dealers.



**Send Me a New 1985 Computer Catalog!**  
Mail To: Radio Shack, Dept. 85-A-939, 300 One Tandy Center, Fort Worth, Texas 76102

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_



# OUR NEW BABY IS ONLY 5½ LBS. AND RARING TO GO!

We'll be the first to admit that, at 5½ pounds, our new TRP-100 thermal ribbon printer isn't the biggest printer around.

In fact, that's our point.

## It's Battery Powered!

From the start, we wanted to create a compact, portable printer that would be as at home on a job site as in your office, one that operates equally well on batteries or AC.

So, rather than use the heavy bodies some manufacturers use, we used a compact, stylish body for impressive portability. Instead of using the average sort of print

head—for just average results—we used an advanced process for full-size print-outs at 50 characters per second on plain paper.

And instead of making a printer with power requirements that tie you to a wall, we used an energy-efficient system that operates on regular or rechargeable batteries.

So our new TRP-100 isn't the biggest printer around. Just the biggest development.

## Convenient Compatibility

The TRP-100 is perfect with the Model 100, our new Model 200 or any of our other computers—or

with the IBM PC. Put it inside your briefcase for text and bit-image graphics anywhere.

See the travel-ready TRP-100 (26-1275, \$299.95) at any Radio Shack Computer Center or participating store or dealer.

Circle Reader Service card #4

Available at over 1200

Radio Shack Computer Centers and at participating Radio Shack stores and dealers

**Radio Shack®**  
**COMPUTER CENTERS**

A DIVISION OF TANDY CORPORATION

Prices apply at Radio Shack Computer Centers and at participating stores and dealers. IBM/TM International Business Machines Corp.





## Letters to the Editor

### A French Dragon

I am a new *HOT CoCo* reader, and I find it very interesting. I own a Dragon 32 with 32K RAM, and I am looking for CoCo owners in the States to exchange ideas with, as the Dragon and CoCo are almost compatible.

*Chritian Claeysen  
La Place Eringhem  
59470 Wormhout  
France*

### Space Hawks Correction

*We inadvertently left out a line of programming code in the listing for "Space Hawks", February 1985, p. 23. Line 640 should read as follows:*

```
640 DATA 183,89,25,247,89,27,236  
196,132,0,196,0,138,0,202,0,237  
196,190,89,98,51,200,32,122,89,  
106,38,194,182,89,100,183,89,106  
254,89,101,51,65
```

—eds.

### Gorilla Graphics

I need information on the Gorilla/Banana printer. Does anyone have a screen dump or graphics driver program for this little animal?

*Ronald E. Bell  
P.O. Box 734  
Ozona, TX 76943*

### Protect Your Storage

I've created a program to store data or programs on disk so that other people cannot get into them. I've no use for it, but I'm sure it will be helpful to other users.

```
10 CLS  
20 FOR T = 1 TO 8  
30 A$ = INKEY$: IF A$ = "" THEN 30  
40 B$ = B$ + A$  
50 NEXT T  
60 SAVE B$
```

Load a program into your CoCo, and add the above lines to the end of it. Now run the above lines separately. When the screen clears, press the X key eight times. Your disk drive will now save your program. Type "DIR". On your directory, you'll see "XXXXXXXXXX". Now type in "LOAD "XXXXXXXXXX"". Big deal—it loaded!

This time, run the program above separate from the main program. Now press the X key three times. Now press the left-arrow key once and the X key four more times. Now type in "DIR". Try loading the program, and no matter how hard you try, it just won't load. To get the above program to load, simply clear the memory and type in the program above, but change line 60 to "LOAD B\$". Again, type in three Xs, then one left arrow and four Xs. This time you'll get an OK on your screen. It has now loaded. Use the left-arrow key and a combination of characters on your keyboard, and you can hide programs perfectly.

*Jonathon W. Hill  
Columbus, Ontario*

### Attention Shoppers!

*Drat! Those of you who have tried to use the "Shopping" program in our February issue (HOT CoCo, February 1985, p. 65) should delete line 1140 and make the following line changes:*

```
1139 IF AA = 2 THEN 1260  
1260 RETURN  
7040 IF LEFT$(F$(I),1) = A$ THEN P  
TR = I:GOTO7080
```

—eds.

### Bad Timing

I cannot believe you ran the article on timing a disk drive (A Matter of Timing, p. 40) in your December issue. How many of your readers wasted countless hours typing in that ridiculous program?

Here is how to time a disk drive on a CoCo. Remove the cover. Look at the timing strobe on the disk spindle. Note that one is marked 60 and one is marked 50. These relate to alternating current cycles, one for the U.S., and one for other countries. Turn on a fluorescent light. Adjust the timing screw until the 60-cycle strobe stops moving. Close the drive and you are done.

That is what the strobe is for. That is why it is on the drive. This program is an unbelievable waste of time.

*Jeffrey Parnau, President  
Parnau Graphics, Inc.  
New Berlin, WI*

*We consulted with a local expert in computer repair, Ed Umlor, who has repaired computers and disk drives for more than seven years and has more than one contract in the industry as a re-builder of disk drives. While he agrees that it is possible to time disk drives in the manner you describe, he also notes several areas you haven't considered. The long-term stability of a disk drive depends on its accuracy. The more accurately you time it, the longer its time span of trouble-free operation. When you bring your CoCo drive or drives to a professional for repair, you expect to have them timed by program down to the smallest margin of error possible.*

*The time it takes for the human eye to assimilate a visual cue is equal to about 10 percent of one revolution of a disk drive. This means that strobe timing can be off by as much as 1.5 rpm or more in either direction. It takes a long-term sampling with a fixed indicator to show actual stability of the 60 Hz pattern. The pattern would have to look as if the wheel was not turning at all to be exactly on 300 rpm and stable.*

*What this means is that strobe-wheel adjustment is fine for roughing the speed to within a plus or minus .5 to 1.5 margin of error, but precise adjustment of disk-drive speed to within less than .5 rpm requires a graphic display/printout from a program capable of timing down to 1 millisecond (0.01 of a second) or better. The human eye has a time lag of about 20 to 30 milliseconds and does not meet that requirement.—eds.*

### Painful Process

I want to tell you how much I enjoy your magazine. For the past several months, I've been in the painful process of learning 6809 Assembly language. *HOT CoCo* Assembly programs and

articles have been a great aid and motivator. Keep up the good work.

It would help me if you could run articles on using documented and undocumented ROM routines and on Assembly math and screen bit-mapping.

*Bennett D. Shulman  
Lansing, MI*

### Keyboard-Controlled Possum

In your March 1984 issue, you printed a program called Possum Run (p. 50). When I had the program working properly, I noticed that it was difficult to keep the possum in the center lane with the joystick control. For this reason, I added a few lines to allow me to use keyboard control:

```
81 CLS:INPUT "K/J";ZZZ$:ZZZ$=LEFT$(ZZZ$,1)  
100 IF ZZZ$<>"K" THEN J0=JOYSTK(0)  
J1=JOYSTK(1)  
101 IF ZZZ$="K" THEN GOSUB1000  
320 J0=40:PLAYP4$:GOTO108  
345 J0=40:PLAYP4$:GOTO108  
370 J1=40:PLAYP4$:GOTO110  
390 J1=40:PLAYP4$:GOTO110  
1000 IF PEEK(341)=247 THEN POKE  
341,255:J1=10:J0=40:RETURN  
1001 IF PEEK(342)=247 THEN POKE  
342,255:J1=50:JO=40:RETURN  
1002 IF PEEK(343)=247 THEN POKE  
343,255:J0=50:J1=40:RETURN  
1003 IF PEEK(344)=247 THEN POKE  
344,255:J0=55:J1=40:RETURN  
1004 IF PEEK(345)=247 THEN POKE  
345,255:J0=40:J1=40:RETURN  
1005 RETURN
```

Lines 100 and 101 should be changed as shown. Lines 81 and 1000-1005 should be added to the program. Readers should not use the variable ZZZ\$ in further program additions, as my patch refers to this variable throughout the program execution. Changing this variable in any way will switch the program back to joystick control.

*Andrew Athan  
Pelham Manor, NY*

### Koala Aid

I'm looking for some programs for my Koala Touch Pad. Can anyone out there help?

*Rodney Farrah  
25 Sunset Dr.  
Bayshore  
Trinidad, West Indies*

## On Line

### New York, New York

Our new BBS is located in New York City. It is dedicated to Color Computer users and features a database; private and public messages; merchandise; upload and download sections; and hints, tips, POKES, and other areas of interest for Color Computer users.



## Letters to the Editor

The board is up 24 hours a day, seven days a week and is running four 40-track drives. Readers can reach the BBS by dialing 212-682-0681.

*Stephen Schechter  
New York, NY*

of each month. A newsletter will be sent twice-monthly to all members. All questions will be placed in the newsletter.

*Mike Howard  
Micro Kids  
Howard Enterprises  
P.O. Box 902  
Sanford, NC 27330  
919-775-2179*

Congratulations on your magazine. Keep up the good work.

*Jon Jacobs  
Micro-Zone Computer Club  
and Pen Pal Service  
7931 N.W. 35 Ct. #3  
Coral Springs, FL 33065*

## Clubhouse

### Knoxville, TN

We would like to announce that the new Colorworks Computer Club is now meeting. Anyone interested in joining should contact Robert Ogle at 615-524-8826.

We would also like to announce the 24-hour, K-80 Color Board is now on line, seven days a week. It has all the standard features, plus some extras. Call 615-688-8349 for a good time!

*Mike Phillips  
1307 Michaels Road, NW  
Knoxville, TN 37912*

### Micro Kids

I am starting a computer club for kids aged 7-15 from the southeastern United States. Dues are 60 cents monthly, and will be paid the third day

### Dungeon Masters

We are a small group of people who have figured out how to kill the wizards in Dungeons of Daggorath, although we have never been strong enough to defeat them. We do, however, have a lot of information about the game.

If anyone is interested in joining our Dungeon Masters club, send a self-addressed, stamped envelope and any information (however minor) you have about the Dungeons of Daggorath.

*Joe Wilson  
Dungeon Masters  
319 Kingston  
DeSoto, MO 63020*

### Pen Pal Service

Micro-Zone Pen Pal Service will forward your letters to other users around the world, and back again. We are also forming a computer club. Send a self-addressed, stamped envelope for more information.

### Return Of The 6809ers

I would like to reannounce the formation of the Massachusetts 6809ers CoCo Club.

We now have a monthly newsletter and a 24-hour Colorama BBS (1-413-532-5631). We meet monthly at a local electric company and are looking for new members.

*Jean Salvas, club secretary  
204 East St.  
Springfield, MA 01104  
413-734-5163*

### Odenton-Fort Meade, MD

We would like to announce the formation of the Odenton Color Computer Club in the Odenton-Fort Meade, MD area.

The club meets on the second Wednesday of each month at the Moss Building, Route 175 in Odenton.

*J.E. McCranie  
1616B Forrest Ave.  
Fort Meade, MD 20755  
301-672-2905*

Circle Reader Service card #214

# You're in good company...

## These are some of our other valued customers

ADM Technology, Inc.

AT&T Technologies

Bethel College

E.I. DuPont

Florida International University

Georgia-Pacific Corporation

GM Technical Center

Hoffmann-La Roche, Inc.

Indiana University Northwest

International Minerals & Chem., Corp.

Marquette University

Mercy Hospital

Motorola Inc.

Motorola Comm. & Electronics, Inc.

National Video Services, Inc.

Niagara College

Oregon State University

RCA Corporation

Robertshaw Controls Company

Rutgers-The State University

Salescaster Displays Corporation

Seiscor Technologies, Inc.  
(A Subsidiary of Switchcraft, Inc.)

Sonoma State University

Southwire Company

The John Hopkins University

The Singer Company

University of Wisconsin-Madison

Union Carbide

University of Southern California

US Environmental Protection Agency

Verbatim Corporation

WCVB-TV

Yeshiva University



*"Innovative Products for the CoCo User"*

Call or write today for our **FREE** Catalog  
P.O. Box 813 • North Bergen, N.J. 07047 • 201-330-1898



# Telewriter-64™

## the Color Computer Word Processor

- **3 display formats: 51/64/85 columns × 24 lines.**
- **True lower case characters**
- **User-friendly full-screen editor**
- **Right justification**
- **Easy hyphenation**
- **Drives any printer**
- **Embedded format and control codes**
- **Runs in 16K, 32K, or 64K**
- **Menu-driven disk and cassette I/O**
- **No hardware modifications required**

### THE ORIGINAL

Simply stated, Telewriter is the most powerful word processor you can buy for the TRS-80 Color Computer. The original Telewriter has received rave reviews in every major Color Computer and TRS-80 magazine, as well as enthusiastic praise from thousands of satisfied owners. And rightly so.

The standard Color Computer display of 32 characters by 16 lines without lower case is simply inadequate for serious word processing. The checkerboard letters and tiny lines give you no feel for how your writing looks or reads. Telewriter gives the Color Computer a 51 column by 24 line screen display with *true lower case characters*. So a Telewriter screen looks like a printed page, with a good chunk of text on screen at one time. In fact, more on screen text than you'd get with Apple II, Atari, TI, Vic or TRS-80 Model III.

On top of that, the sophisticated Telewriter full-screen editor is so simple to use, it makes writing fun. With single-letter mnemonic commands, and menu-driven I/O and formatting, Telewriter surpasses all others for user friendliness and pure power.

Telewriter's chain printing feature means that the size of your text is never limited by the amount of memory you have, and Telewriter's advanced cassette handler gives you a powerful word processor without the major additional cost of a disk.

*...one of the best programs for the Color Computer I have seen...*

— Color Computer News, Jan. 1982

### TELEWRITER-64

But now we've added more power to Telewriter. Not just bells and whistles, but major features that give you total control over your writing. We call this new supercharged version Telewriter-64. For two reasons.

### 64K COMPATIBLE

Telewriter-64 runs fully in any Color Computer — 16K, 32K, or 64K, with or without Extended Basic, with disk or cassette or both. It automatically configures itself to take optimum advantage of all available memory. That means that when you upgrade your memory, the Telewriter-64 text buffer grows accordingly. In a 64K cassette based system, for example, you get about 40K of memory to store text. So you don't need disk or FLEX to put all your 64K to work immediately.

### 64 COLUMNS (AND 85!)

Besides the original 51 column screen, Telewriter-64 now gives you 2 additional high-density displays: 64 × 24 and 85 × 24!! Both high density modes provide all the standard Telewriter editing capabilities, and you can switch instantly to any of the 3 formats with a single control key command. The 51 × 24 display is clear and crisp on the screen. The two high density modes are more crowded and less easily readable, but they are perfect for showing you the exact layout of your printed page, *all on the screen at one time*. Compare this with cumbersome "windows" that show you only fragments at a time and don't even allow editing.

### RIGHT JUSTIFICATION & HYPHENATION

One outstanding advantage of the full-width screen display is that you can now set the screen width to match the width of your printed page, so that "what you see is what you get." This makes exact alignment of columns possible and it makes hyphenation simple.

Since short lines are the reason for the large spaces often found in standard right justified text, and since hyphenation is the most effective way to eliminate short lines, Telewriter-64 can now promise you some of the best looking right justification you can get on the Color Computer.

### FEATURES & SPECIFICATIONS:

**Printing and formatting:** Drives any printer (LPVII/VIII, DMP-100/200, Epson, Okidata, Centronics, NEC, C. Itoh, Smith-Corona, Terminet, etc).

Embedded control codes give full dynamic access to intelligent printer features like: underlining, subscript, superscript, variable font and type size, dot-graphics, etc.

Dynamic (embedded) format controls for: top, bottom, and left margins; line length, lines per page, line spacing, new page, change page numbering, conditional new page, enable/disable justification.

Menu-driven control of these parameters, as well as: pause at page bottom, page numbering, baud rate (so you can run your printer at top speed), and Epson font. "Typewriter" feature sends typed lines directly to your printer, and Direct mode sends control codes right from the keyboard. Special Epson driver simplifies use with MX-80.

Supports single and multi-line headers and automatic centering. Print or save all or any section of the text buffer. Chain print any number of files from cassette or disk.

**File and I/O Features:** ASCII format files — create and edit BASIC, Assembly, Pascal, and C programs, Smart Terminal files (for uploading or downloading), even text files from other word processors. Compatible with spelling checkers (like Spell 'n Fix).

Cassette verify command for sure saves. Cassette auto-retry means you type a load command only once no matter where you are in the tape.

Read in, save, partial save, and append files with disk and/or cassette. For disk: print directory with free space to screen or printer, kill and rename files, set default drive. Easily customized to the number of drives in the system.

**Editing features:** Fast, full-screen editor with wordwrap, block copy, block move, block delete, line delete, global search and replace (or delete), wild card search, fast auto-repeat cursor, fast scrolling, cursor up, down, right, left, begin line, end line, top of text, bottom of text; page forward, page backward, align text, tabs, choice of buff or green background, complete error protection, line counter, word counter, space left, current file name, default drive in effect, set line length on screen.

Insert or delete text anywhere on the screen without changing "modes." This fast "free-form" editor provides maximum ease of use. Everything you do appears immediately on the screen in front of you. Commands require only a single key or a single key plus CLEAR.

*...truly a state of the art word processor...  
outstanding in every respect.*

— The RAINBOW, Jan. 1982

### PROFESSIONAL WORD PROCESSING

You can no longer afford to be without the power and efficiency word processing brings to everything you write. The TRS-80 Color Computer is the lowest priced micro with the capability for serious word processing. And only Telewriter-64 fully unleashes that capability.

Telewriter-64 costs \$49.95 on cassette, \$59.95 on disk, and comes complete with over 70 pages of well-written documentation. (The step-by-step tutorial will have your writing with Telewriter-64 in a matter of minutes.)

To order, send check or money order to:

**Cognitec**  
704 N. Nob St.  
Del Mar, CA 92014

Or check your local software store. If you have questions, or would like to order by Visa or Mastercard, call us at (619) 755-1258 (weekdays, 8AM-4PM PST). Dealer inquiries invited.

**NOW AVAILABLE AT  
RADIO SHACK STORES  
VIA EXPRESS ORDER.**

Apple II is a trademark of Apple Computer, Inc.; Atari is a trademark of Atari, Inc.; TRS-80 is a trademark of Tandy Corp; MX-80 is a trademark of Epson America, Inc.



# The Basic Beat

## MORE ON CHR\$ GRAPHICS

by James W. Wood

**B**efore finishing the lesson begun last month on CHR\$ graphic animation, I have a message of public interest. Recently I have received many letters concerning program listings from the Basic Beat or from other articles of mine. Some letters are fan mail, and I enjoy that. Unfortunately, others are from unhappy readers who haven't been able to run a particular program successfully after they typed it into their computer.

Before writing for help, check your typing very carefully. One letter I received contained a printout of the program listing with four mistakes in the first line. Another listing had only one mistake: The numbers 2 and 4 were reversed in a PCOPY command, and the error was easy to find because the writer described what happened as the program ran. Many typing errors occur because readers mistake 1's for I's, 0's for O's, or 5's for S's. If possible, have someone else check your typing.

Be sure to read the article that accompanies the program to get all the information you need to load and run the program. One reader complained that a certain program kept giving an OM (out of memory) error. However, the accompanying article gave instructions to enter a POKE25,6:NEW before loading the program to free up the Extended Color Basic computer's reserved graphics memory, thereby

giving more memory to the Basic program to use.

Several letters stated that an error occurred in a particular line. The readers deleted that line, but the program still didn't run properly. No kidding! If the line wasn't necessary, it probably wouldn't have been in the program. You can usually eliminate an SN (syntax) error in a certain line by correcting that line. An FC (function call) error in a line is usually the result of an error in another line. For example, if you run Program Listing 1, you will get an FC error in line 30. The mistake is in line 20, because I purposely added an asterisk (\*) instead of a plus sign (+). Make the correction to get the program to run properly.

Fixing your own program is usually faster and more satisfying than seeking help. If you do need assistance, your Basic Beat author is ready. Send the following: a printout or cassette copy of the faulty program, the month and page number of the article, a description of the problem, and a self-addressed, stamped envelope. You might even add a few comments on my programs and articles.

And now, back to work. Program Listing 2 creates a kaleidoscope pattern. Line 30 sets a limit of 25 groups of PRINT@ positions being lighted. Line 40 picks one of the solid color CHR\$ graphics. See last month's column (*HOT CoCo*, March 1985, p.16) or the CHR character-code chart in your Color Computer manual. Lines 50-80 determine the positions to be lighted. Position 240 is about the center of the screen.

To light four positions symmetrically, go X units left and right and Y\*32 units up and down. Reducing the PRINT@ position number by 32 moves you up one position, subtracting 64 moves you up two positions, and so on. Line 90 occasionally prints a black position, turning off a colored graphic and therefore creating a twinkling effect.

Program Listing 3 creates a multi-colored border around the screen that helps attract attention. To prevent scrolling, I didn't go to the bottom row. Remember to use a semicolon after any printing to prevent the green lines to the right, as in line 130.

Program Listing 4 compares two methods of moving graphics. Lines 80-100 move a "crown" (left half of Fig.



Fig. 1. Moving a Graphic One-Half of a PRINT@ Position

### System Requirements

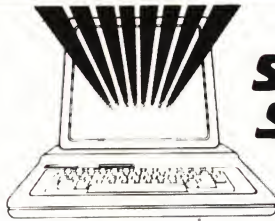
4K RAM  
Color Basic



Fig. 2. Creating a Graphic Number 8



# GREAT COCO PRODUCTS



## SUPER SCREEN

### The Color Computer Supercharger

- A big 52 character by 24 line screen
- 'PRINT @' is fully implemented on the big screen
- Easily combine text with Hi-res graphics
- Auto-key repeat for greater keyboard convenience
- The 'ON ERROR GOTO' statement is fully implemented
- Control codes for additional function

Super Screen comes with complete, well detailed instructions and is available on cassette or disc. It adjusts automatically to any 16K or greater, Extended or Disc basic Color Computer or TDP-100 and uses only 2K of memory in addition to the screen memory reserved during power up. Guaranteed to be the most frequently used program in your software library...once you use it, you won't be without it!

**Hot CoCo, Jan. '84** "Super Screen represents a quality utility program that fills a definite need for the serious CoCo user. No other programs on the market so far have offered the error-trapping utility of Super Screen."

**Color Computer Magazine, May '84** "Super Screen is a worthy addition to anyone's software library. It has become my most used utility and has made programming in BASIC on the Color Computer a joy..."

Cassette \$29.95

Disc \$32.95

**NEW!**

## EASY-FILE Data Management System

- Need a good mailing list or customer list program? How about a program to keep track of your investments, your computer magazines, or record collection? Do you have an inventory of all household items for insurance purposes? **EASY-FILE** will do all of these things and many more.
- **EASY-FILE** makes data managing a breeze with single key menu selections, extensive error handling procedures, a demonstration data file and a detailed, easy to understand instruction manual.
- **EASY-FILE** is powerful too. It automatically enhances your monitor screen to a full upper and lower case 51 character by 24 line display. **EASY-FILE** allows up to 30 data fields and provides password file protection, selectable numeric totalling, and complete data searching and editing capabilities. You can quickly enter, locate, review and modify data records, and even transfer records from one file to another.
- Sorting? You bet! **EASY-FILE** allows you to sort up to 5 levels of data and allows you to define upper and lower limits as well. You can sort in many different ways and save the results in individual index files. These index files may be used later to determine what will appear on your printed reports.
- Reports are easily prepared with **EASY-FILE** because it offers so many automatic features. There is no need to generate complex report forms. With **EASY-FILE** you simply select from a list of options to determine what your report and header will look like. There are countless variations. **EASY-FILE** takes care of tab stops and field spacing automatically. Prepare horizontal reports (80 or 132 columns), vertical reports or labels! Save your favorite report formats right in a data file so they may be used whenever you need them.
- The **EASY-FILE** master disc and instructions are packaged in an attractive 3-ring binder. Requires 32K and at least one disc drive.

**Order yours now! Get organized for only \$59.95!**

**NEW!**

## UNIVERSAL VIDEO DRIVER

Carefully engineered to work with **ALL** Color Computer models, including the new **COCO II**

**ENABLES YOUR COCO TO OPERATE WITH A VIDEO MONITOR INSTEAD OF A TELEVISION**

- Works with Monochrome Monitors!
- Works with Color Monitors!
- Great Price! **ONLY \$29.95**
- Audio Connection Included!
- Easy Installation—No Soldering!

## ORDER ENTRY SYSTEM

**Rainbow, Feb. '84** "If you are looking for a program to keep track of your sales and print invoices, then this one will take care of those needs quite well...A good program that would serve the invoicing needs of a small company quite nicely."

The Mark Data Products sales order processing system provides a fast, efficient means to enter orders, print shipping papers and invoices, prepare sales reports, and monitor receivables. The system automatically enhances the monitor screen to a 51 character by 24 line display. 32K of memory is required along with an 80-column printer and one or more disc drives.

The MDP Order Entry System is a family of programs which operate interactively by means of a "menu" selection scheme. Up to 900 products may be defined and a single disc system can hold over 600 transactions. When the operator selects a task to be performed, the computer loads a program designed to handle that task from the system disc. The system disc contains all of the programs required to create, update and maintain data files and prepare the necessary paperwork including shipping and invoice forms, daily sales reports, a monthly (or other period) sales report and a receivables report.

This order entry software equals or exceeds higher priced packages for other computers and includes a detailed operating manual. **ONLY \$99.95**

## SUPER PRO KEYBOARD



**ONLY  
\$64.95\***

- Original key layout
- Fast, easy installation—no soldering
- Individually boxed with full instructions
- Smooth "Touch Typist" feel—no sagging
- U.S. made—high quality, quad gold contacts
- Professional, low profile, finished appearance

\* Computers produced after approximately October 1982 require an additional keyboard plug adapter. Please add \$4.95.

## ACCOUNTING SYSTEM

**Rainbow, May '84** "Considering what it can do to organize a small business, it is quite a value."

**Hot CoCo, June '84** "...a serious, professional accounting program and well worth its price. The programs are complete and simple to use."

The Mark Data Products Accounting System is ideal for the small businessman needing a fast, efficient means to process income and expenses, prepare detailed reports and maintain most of the information required at tax time. The system is a family of programs which operate by means of a "menu" selection scheme. When the operator selects a task to perform, the computer loads a program designed to handle that task from the system disc. The system disc contains all of the programs required to create, update and maintain data files and prepare the necessary accounting reports including a transaction journal, a P & L or income report, an interim or trial balance and a balance sheet.

Up to 255 separate accounts may be defined and a single disc system can hold over 1,400 transactions. This system automatically enhances the monitor screen to a 51 character by 24 line display. 32K of memory is required along with an 80-column printer and one or more disc drives.

This accounting software equals or exceeds higher priced packages for other computers and includes a detailed operating manual. **ONLY \$99.95**



**FREE - Send for our NEW 24 page catalog!**

**Mark Data Products**

24001 ALICIA PKWY., NO. 207 • MISSION VIEJO, CA 92691 • (714) 768-1551

**SHIPPING:** All orders under \$100 please add \$2 regular, \$5 air. All orders over \$100 please add 2% regular, 5% air. California residents please add 6% sales tax. Orders outside the continental U.S., check with us for shipping amount; please remit U.S. funds. Software authors—contact us for exciting program marketing details. We accept MasterCard and VISA. Distributed in Canada by Kelly Software.



1) one PRINT@ position at a time across the screen. But the movement is jerky—how can you smooth it out? Move the graphic one-half of a PRINT@ position each time, as done in lines 120–170.

The technique requires the two different strings shown in Fig. 1. Lines 30–40 create the graphics for the different crowns. The screen first displays the pattern on the left, then it displays the one on the right in the same position. This moves the pattern one half of a PRINT@ position. Next the pattern on the left is displayed to the left of the one before, another one-half shift. Repeating this process across the screen requires more programming effort, but it does move more smoothly.

*“Moving multicolored graphics by one-half of a position is probably impossible. . .”*

Moving multicolored graphics by one-half of a position is probably impossible, because you cannot program two different colors into one PRINT@ position. If two different colors were next to each other, moving them one half a position would place them into

the same PRINT@ position.

Program Listing 5 became complicated, but the effect looks good. The program rapidly flashes a big number 8 (Fig. 2) in each of the eight colors. Lines 30–60 assign the numbers for the graphics to the variable C-H. Line 70–120 create a two-dimensional array of the eight colored graphics of Fig. 2. The B dimension refers to the color, and the second number refers to the top, middle, or bottom row of the graphic. Note again that adding 16 creates the same pattern of graphic in the next color.

Line 80's only purpose is to give you a flashing screen to look at while the program prepares the graphic strings. Lines 140–180 draw the graphics and

Program Listing 1

```
5 CLS
10 FOR X=1 TO 20
20 Y=X*2
30 SET(X,Y,5)
40 NEXT X
50 GOTO50
```

Program Listing 2

```
10 REM KALEIDOSCOPE, BETTER
20 CLS
30 FOR T=1 TO 25
40 S=127+16*NRND(8)
50 X=NRND(15):Y=NRND(7)
60 A=240+X+Y*32:B=240+X-Y*32
70 C=240-X+Y*32:D=240-X-Y*32
80 CS=CHR$(S)
90 IF NRND(3)=1 THEN CS=CHR$(128)
100 PRINT@A,CS;:PRINT@B,CS;
110 PRINT@C,CS;:PRINT@D,CS;
120 NEXT T
130 GOTO 20
```

Program Listing 3

```
10 REM GRAPHIC BORDER
20 CLS
30 FORA=0TO31:GOSUB110:NEXTA
40 FORA=31TO479STEP32
50 GOSUB110:NEXT A
60 FORA=479TO448STEP-1
70 GOSUB110:NEXT A
80 FORA=448TO0STEP-32
90 GOSUB110:NEXTA
100 GOTOL30
110 CS=CHR$(127+16*NRND(8))
120 PRINT@A,CS;:RETURN
130 PRINT@238,"TITLE";
140 GOTOL40
```

Program Listing 4

```
10 REM COMPARE GRAPHIC MOVES BY
ONE TO ONE HALF PRINT@ POSITIONS
20 CLS
30 AS=CHR$(203)+CHR$(203)+CHR$(2
02)+CHR$(128)
```

```
40 BS=CHR$(197)+CHR$(199)+CHR$(1
99)+CHR$(128)
50 INPUT"MOVE CROWN BY (ONE) OR
(HALF) SPACES";WS
60 IF WS="ONE" THEN 70 ELSE IF W
S="HALF" THEN 120 ELSE PRINT"TYP
E 'ONE' OR 'HALF'":GOTO50
70 CLS
80 FORA=60TO31STEP-1
90 FORT=1TO90:NEXTT
100 PRINT@A,AS;:NEXTA
110 CLS:GOTO50
120 CLS:FORA=60TO31STEP-1
130 FORT=1TO40:NEXTT
140 PRINT@A,BS;
150 FORT=1TO40:NEXTT
160 PRINT@A,AS;
170 NEXTA
180 CLS:GOTO50
```

Program Listing 5

```
10 REM CHANGING COLORS OF EIGHT
20 CLS
30 DATA 14,13,14,13,12,12
40 READ C,D,E,F,G,H
50 C=C+128:D=D+128:E=E+128
60 F=F+128:G=G+128:H=H+128
70 FOR B=0 TO 7
80 CLS(B+1)
90 AS(B,1)=CHR$(C+B*16)+CHR$(D+B
*16)
100 AS(B,2)=CHR$(E+B*16)+CHR$(F+
B*16)
110 AS(B,3)=CHR$(G+B*16)+CHR$(H+
B*16)
120 NEXT B
130 CLS
140 FORA=0TO7
150 B=130
160 PRINT@B,AS(A,1);:PRINT@B+32,
AS(A,2);:PRINT@B+64,AS(A,3);
170 FORT=1TO90:NEXTT
180 NEXTA
190 GOTOL40
```

Program Listing 6

```
10 REM POSITIVE TO NEGATIVE
20 CLS
30 AS(1)=CHR$(145)+CHR$(147)+CHR
$(146)
40 AS(2)=CHR$(149)+CHR$(147)+CHR
```

```
$(154)
50 AS(3)=CHR$(149)+CHR$(156)+CHR
$(154)
60 AS(4)=CHR$(148)+CHR$(156)+CHR
$(152)
70 BS(1)=CHR$(158)+CHR$(156)+CHR
$(157)
80 BS(2)=CHR$(154)+CHR$(156)+CHR
$(149)
90 BS(3)=CHR$(154)+CHR$(147)+CHR
$(149)
100 BS(4)=CHR$(155)+CHR$(147)+CH
R$(151)
110 FORA=1TO4
120 PRINT@169+A*32,AS(A);:NEXT
130 FORT=1TO200:NEXTT
140 FORA=1TO4
150 PRINT@169+A*32,BS(A);:NEXT
160 FORT=1TO200:NEXTT
170 GOTOL10
```

Program Listing 7

```
10 REM ROCKET SHOOT
20 CLS:PRINT"PRESS 'F' TO FIRE"
30 FORT=1TO500:NEXTT
40 CLS
50 PRINT@506,CHR$(143)+CHR$(128)
+CHR$(143);
60 Z=CHR$(128)+CHR$(128)+CHR$(1
28)+CHR$(128)+CHR$(128)
70 F=CHR$(128)+CHR$(254)+CHR$(2
55)+CHR$(253)
80 E=NRND(13)*32+32:PRINT@E,F;
90 F=E
100 PRINT@E,F;
110 ES=INKEY$
120 IFES="F" THEN150
130 E=E+1:IFE>F+28 THEN240
140 GOTOL10
150 FORQ=507TO35STEP-32
160 PRINT@Q,CHR$(255);:PRINT@Q,C
HR$(128);
170 E=E+1:IFE>F+28 THEN240
180 PRINT@E,F;
190 IFQ=E+1ORQ=E+2ORQ=E+3 THEN210
200 GOTOL20
210 GOSUB250:FORT=1TO50:NEXTT:
GOTO80
220 NEXTQ
230 E=E+1:GOTOL10
240 PRINT@E-1,Z;:GOTO80
250 FORWW=1TO5
260 PRINT@Q-2,Z;:SOUND180,1:PRI
NT@Q-2,F;
270 NEXTWW:PRINT@Q-2,Z;:RETURN
```



## The Basic Beat

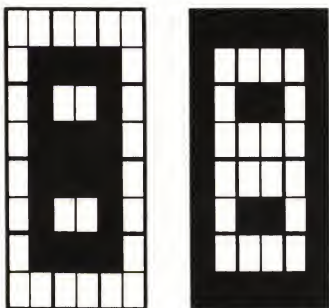


Fig. 3. Creating a Positive and a Negative Image

line 170 adds a pause between each of the eight colors.

Because Listing 5 became a little complicated, I wrote Program Listing 6. Instead of flashing a graphic in all eight colors, it flashes a figure from a positive to a negative image. Figure 3 illustrates the graphic. Lines 30-60 are the strings for the positive, and lines 70-100 create the negative graphic, reversing the colors of the original. Line 110-120 display the positive, line 130 adds a pause, and line 130-150 display the negative. Line 160 adds another pause, and then the program flashes the original again. You might use this technique with a FOR loop to flash a graphic reward for a correct answer on a quiz or for winning a game.

Program Listing 7 is for fun. Its use of CHR\$ graphics has been described in this and last month's columns. Add to the program. For example, you might want to have the screen display the score and limit the number of shots. A good way to learn programming is to improve on an existing one.

### Farewell

This month's column concludes the Basic Beat series. I hope it has been as rewarding to my readers as it has been to me. If there is enough interest out there, perhaps I can start a column that will go into programming techniques for Extended Color Basic machines. For now, though, farewell and happy computing! ■

*Thanks, Jim, for a great job on a series that has proven invaluable to many beginning programmers.—eds.*

*Address correspondence to James Wood, 424 N. Missouri, Box 507, Atwood, IL 61913.*

## ADVENTURUS SUPREMUS 4.6B

● Are you an adventurer with at least some experience?

● Are you just a little tired of games set in some repetitive science fiction or medieval type setting?

● **Adventurus Supremus 4.6B** offers a different type of adventure, realistic yet humorous. Challenging, comical, and farcical, it offers an out of the ordinary adventure experience, that's just the change that you need.

Only those with at least some adventuring experience need apply.

16k Color Basic Minimum  
Required (On Tape)

Send 9.95 (check or M.O.) to:

**Bacchus Computer Software**  
143 E. Michigan Ave.  
Paw Paw, MI 49079

Circle Reader Service card #325

**We Pay the Shipping!**

## ATTENTION

**Foreign Computer Stores/  
Magazine Dealers**

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that CW/Peterborough provides.

Provide your audience with the magazine they need and make money at the same time. For details on selling **Microcomputing**, **80 MICRO**, **inCider**, **HOT CoCo**, **RUN** contact:

**SANDRA JOSEPH**  
**WORLD WIDE MEDIA**  
386 PARK AVE., SOUTH  
NEW YORK, NY 10016  
PHONE (212) 686-1520  
TELEX—620430

Circle Reader Service card #222

## The Master Handicapper™

Series by Professor Jones



### EVALUATES FROM RACING FORM!

Age	Gender	Post (Today)
Class	Jockey (Today)	Post (Last)
Condition	Jockey (Last)	Speed
Consistency	Length	Trainer
Earnings	Time of Year	Workouts

And gives you GRAPHIC REPRESENTATION of finish

### PROGRAM



**GLD. Thoroughbred "Gold" Edition™**  
A "Full" featured thoroughbred analysis designed for the professional and serious novice. **\$159.95 complete**

### EGLD. Enhanced "Gold" Edition™

"Gold" Edition with complete Master Bettor™ system integrated onto the same disk. This powerful program will transfer all horses and scores to the bet analysis with a "single keystroke."

(Master Bettor™ included) **\$199.95 complete**

### GLTD. Limited "Gold"™

Enables **Professional Handicappers** to assign specific values to the racing variables "they" feel are important.

#### PROFESSIONAL HANDICAPPING SYSTEMS

%	%	%
Age 5	Consistency 15	Speed 10
Class 15	Jockey 15	Workouts 0
Condition 10	Trainer 5	Time of Year 0
Earnings 5	Post 10	Consistency 5
100%	Is Everything OK (Y/N)	

Create program weight based on a particular track and line tune it for maximum win percentage. This program is designed for "ease of use". The user needs **no programming experience**.

(contains integrated Bettor™) **\$299.95 complete**

### GD. Gold Dog Analysis™



The only professional dog handicapper on the market, includes:

- 1) Speed
- 2) Post Today
- 3) Kennel
- 4) Post Last
- 5) Distance
- 6) Condition
- 7) Running Style
- 8) Weight
- 9) All new internal weighting
- 10) NEW class indicator

If you are near a greyhound track, you can't afford not to use this program. **\$149.95 complete**

(with integrated Master Bettor™) **\$199.95**

**Limited Dog™ \$299.95**

### MHH. Master Harness Handicapper™



Professional software designed to provide a thorough analysis of all trotter and pacer races in North America and Canada. Features:

Class	Post Positions	Time Finish
Driver	Track Conditions	Time Last Quarter
Days Since Last	Trainer	Track Rating
Gender	Time 1/4	Temp Allowance

**\$159.95 complete** w/integrated Master Bettor™ **\$199.95**

### PPX. Professor Jones' Football Predictor, Prof. Pix™

Complete Football Analysis with **Data-Base**.

- 1) Overlays
- 2) Point Spreads
- 3) "Super Plays"
- 4) "Over/Under" bets
- 5) Data Base Stats
- 6) Holds "100" teams

**Highest percentage of winners 1983**



**\$39.95 complete**

**\$99.95 with Data Base Management**

### NBA. Basketball™

This data base managed analysis will provide the user with "ALL" betting situations while storing relevant information on the disk.

**\$79.95 complete with Manual**

### LOT. Lottery Analysis™

Statistical comparison program designed to detect subtle patterns in winning lottery numbers.

**\$49.95 complete with Manual**

## BROCHURE AVAILABLE

Send check / money order / VISA / Mastercharge  
(Include expiration date) to:



**TELEPHONE**  
(208) 342-6939

**Prof. Jones**  
1114 N. 24th St.  
Boise, ID 83702

VISA

MasterCard

**TERMS: FREE SHIPPING ALL SOFTWARE.**  
Add \$6.00 hardware / C.O.D. Add \$6.00 / Add 3 weeks personal checks / Add 4.5% ID residents / Add \$6.00 outside U.S.A. / Prices subject to change.

**IBM, APPLE, TRS-80,  
C-64 AND OTHERS**



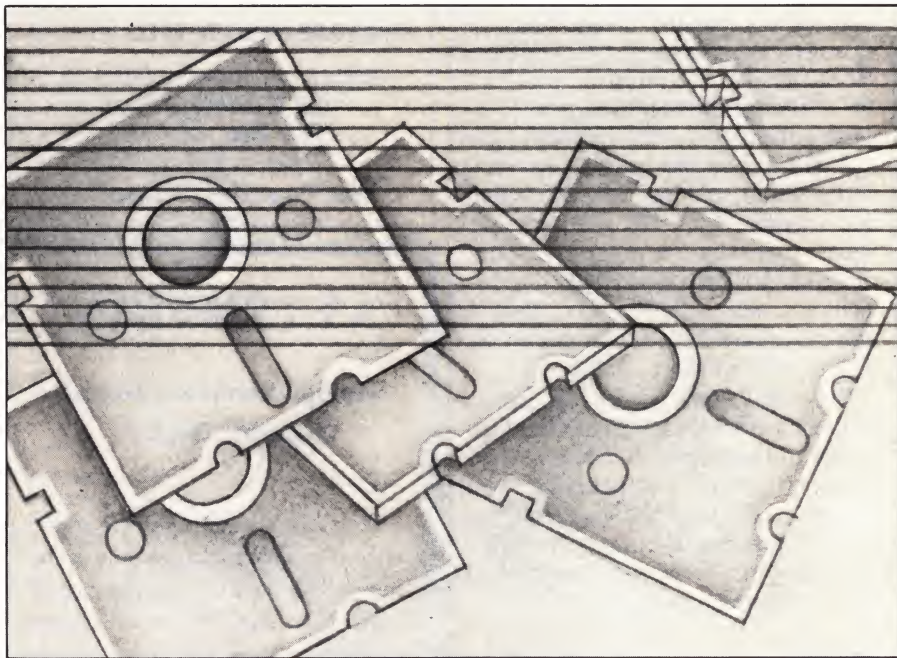
# SMART TERMINALS FOR THE DISK DRIVE SET

*Going on line is easier, quicker, and less expensive with a disk drive and one of these terminal programs.*

*Eds. note—The August and September issues of HOT CoCo featured a two-part review by William Banta, "Six Smart Ways to Go On Line," that covered the cassette and ROM-pack versions of six terminal packages. Some of these terminal packages offer extra features in their disk-based versions. And some of them have been upgraded by their manufacturers. This second look at these programs is a two-part examination of their newest and more powerful disk-based versions.*

*This month Mr. Parker looks at VIP Technologies' VIP Terminal, Computerware's The Color Connection II, and Eigen Systems' Colorcom/E. Next month he'll evaluate Cer-Comp's Data Pack and PXE Computing's Autoterm. Colorterm + Plus + by Double Density Software is not reviewed here because the company is at work on a new version of their terminal package, which HOT CoCo will review at a later time.*

If you read the reviews that focused on the cassette and ROM-pack versions of these programs, you might wonder why anyone would need the disk-based versions. Although these are good programs on cassette and ROM pack, their disk versions have advantages. There are four main reasons why a disk drive can improve a terminal package: greater storage capacity, greater speed for handling information, greater ability to access and interact with information,



*Illustration by Dan Collins*

and greater capacity for the resident program, allowing it to be more complex.

An example or two of how this is helpful follows. The average loading or saving time of a 32K program with a disk drive is under 10 seconds. When you are communicating via a terminal package over long-distance lines with timed charges tacked on by an information utility, time is an important commodity. Using a disk drive also means that you can handle any file at any time on any disk. If one disk is full, you can swap it for another in seconds. Greater storage capacity could be the most important reason for needing a disk-based program

for some people. It means more space to handle uploads and downloads and room for more complicated terminal programs that have specialized features.

For the review of these five smart-terminal packages and their disk versions, the programs were tested on a variety of BBSes running on Color Computers, other microcomputers, and mainframes. They are rated for ease of use, error handling, documentation, and performance. Keep in mind while reading this review that although one program might have more features than another, it also might not have the features that you need. Sometimes the sim-



plest or least expensive can do everything you want it to do, and often with a smaller investment of your time.

Some interesting patterns emerged as a result of the review of these packages. All of the programs loaded, executed, and ran bug free. All of the programs performed according to their manufacturer's specifications. Several of them have on-line help. Some include features, such as a simple word processor, that the others don't have. And some of these programs are a lot easier to learn to use than the others. It is important to get the "feel" of a program before you buy. This review can help you narrow down the field of choices. But consider going to a store or asking a friend or a computer club for a demonstration of the program or programs you are interested in before you make a choice.

	performance	ease of use	error handling	documentation
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Application Software

#### VIP Terminal

**VIP Technologies (Softlaw)**

**132 Aero Camino**

**Goleta, CA 93117**

**805-968-4364**

**32-64K, disk drive, modem**

**\$49.95 disk (includes cassette version)**

VIP Terminal is a menu-driven terminal package that gives you rapid switching and simple commands throughout the entire range of the menu. The program lets you enter and exit the terminal mode rapidly and change the communication parameters while on line. It allows 64K CoCo owners 44,700 bytes of available storage at any time in the buffer.

With VIP Terminal, you can define the screen in a range of colors and inverse video, and there are several high-resolution character sets: 51-, 64- (wide and narrow), and 85-column displays. A 32-column, low-resolution display is available that frees up more RAM for the storage buffer and makes the program run faster and more smoothly. An LPRINT buffer feature lets you define the printer parameters and print the con-

tents of the buffer. The program has disk commands to save, load, and manipulate files.

VIP also gives you programmable KSMs (key-stroke multipliers) that let you define up to 10 buffers of as many as 255 characters and send them to a host computer by pressing the clear key and a number key. This is a convenient feature because it lets you send as many as 255 characters by pressing only two keys.

VIP Terminal supports type-ahead, which means that you can type as fast as you want without worrying that the program won't be able to catch up to you on the screen display. This is a helpful feature for fast touch typists.

VIP boasts one feature that none of the other terminal packages can claim—compatibility with all the other programs in VIP's extensive library. You can save the buffer contents to disk and then load them into VIP Writer for editing or formatting. You can also enter data into VIP Database (reviewed this month) and VIP Calc. This compatibility is a very valuable tool for some applications. It is a selling point that owners of other VIP programs should not overlook.

As great as VIP Terminal is, it does have some drawbacks. Perhaps its biggest fault is in the high-resolution mode. The screen updates very slowly; it is possible to lose incoming data while waiting for the screen to update and scroll a line upwards. The constant scrolling as the screen fills up is difficult to follow. The speed problem is not apparent in the 32-column mode, but that takes away the advantages of the large, high-resolution display. VIP Technologies has released a new version of VIP Terminal since this review was written in which they claim this problem has been eliminated.

Another drawback concerns editing of the buffer. You can erase VIP's buffer and print it, but you can't edit it from within the program. VIP's operation is easy to learn, but it uses several special commands that you must memorize or for which you must refer to the manual; there is no on-line help menu for these commands.

Although VIP Terminal can be somewhat awkward to use and lacks some of the powerful features of other programs, it still has a lot of features to recommend it. It might be the ideal program for people who don't need any of the more specialized features of the other programs. This is a fine stand-alone program that also offers compatibility with the VIP library.

	performance	ease of use	error handling	documentation
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Application Software

#### The Color Connection II Computerware

**Box 668**

**Encinitas, CA 92024**

**619-436-3512**

**32-64K (16K low resolution),**

**disk drive, modem**

**\$39.95**

The Color Connection II is a menu- and submenu-oriented program that does not have built-in help menus. But it is a fast program that is easy to operate once you learn its commands; it is one of the fastest running high-resolution terminal programs for the Color Computer.

It also has well-organized and easy-to-understand documentation, which guides you in a step-by-step manner through its menu options. The manual tells you how to exercise the various options for each phase of the program; how to configure the communications settings, upload and download, and so on. It also contains several appendices, including a summary of the ASCII characters, a trouble-shooting chart (providing possible causes and solutions for common difficulties), a quick-reference summary of the key controls for operating Color Connection, a guide to the tutorial the package includes, and a glossary of telecomputing terms.

You won't find these last two appendices in any of the other terminal programs. Color Connection's "Introduction to Data Communications" is a series of CAI (computer-aided instruction) files that is a primer for data communications. The lessons are technical but easy to understand. The package also provides a self-administered test that you take after completing the last lesson—a nice extra.

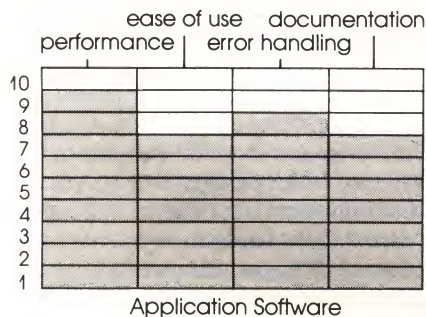
For all of Color Connection's advantages, it does have some drawbacks. You can't make a hardcopy of the data buffer, although the program lets you store a file on cassette or disk. It offers no printing routine and no way to edit contents of the buffer. This is tempered by the inclusion of an appendix in the manual that lists a



routine in Basic you can use to LPRINT a file to the printer. Other troublesome points are the program's limitation to a 16K maximum buffer (even on a 64K machine) and 300-baud communications. There is also a command in the main menu that exits the program to Basic without an error prompt. If you use this command, all the information in the buffer will be lost. An error option, giving you the chance to abort this command, would help a lot.

Because it is quick and its menu options are easy to use, Color Connection is easy to learn. It has 32- and 51-column, high-resolution screens that run as quickly as you can type and are attractive and comfortable to read. It also has options for setting and inverting the video-display colors. Color Connection lets you type directly into the buffer, which means an on-line savings of time and money. For example, you can type in something while you are off line and then execute a buffer dump once you're on line. It is possible to upload to a wide variety of machines with Color Connection; it lets you set parameters in a separate upload menu to any requirements a host computer might have.

Because of its speed, simplicity, and efficiency, Color Connection is a program to consider. This is especially true if you spend a lot of time on BBSes and want a way to store, download, and upload data without the added requirements of getting printouts from within the program while on or off line. These features along with its low price as compared to other terminal packages make Color Connection a very attractive program.



**Colorcom/E, version 2.1**  
**Eigen Systems**  
 distributed by Spectrum Projects  
 93-15 86th Drive  
 22 HOT CoCo April 1985

**Woodhaven, NY 11421**  
**212-441-2807**  
**32-64K (16K low resolution),**  
**disk drive, modem**  
**\$49.95, ROM pack or disk**

The disk version of Colorcom/E is substantially different from the ROM-pack version. *HOT CoCo's* review of the ROM-pack version found Colorcom/E to be a very good program, largely because of its versatility in communicating with so many different computers. Substantial enhancements mark the 2.1 disk version. It now includes an automode feature that, among other things, automates the Color Computer for initiating, conducting, and terminating communications with other computers.

Colorcom/E's unique menu- and file-retrieval system uses disk access to retrieve and run parts of the program. It is an excellent system because it can save RAM for the data buffer and use it only when running the various parts of the program.

In other words, if you want to develop an initialization file—to preset, for example, RS-232 parameters for communication with an IBM mainframe—you access the initialization file, write a setup file, save it, and return to the main area of the program. This process takes the initialization file out of RAM and saves it to disk. The menu is set up in the form of different file names; by selecting a menu option you are actually selecting a file name that the computer retrieves and runs.

Colorcom/E also provides for multi-drive use by giving instructions in the manual for storing working files in drives 1, 2, or 3 while using drive 0 as a control drive for running the communications portion of the program.

Colorcom/E is somewhat confusing at first; it requires that you read its manual thoroughly, practice, and exercise patience before you can fly through its menus with ease and confidence. Colorcom/E's manual is comprehensive but not written with the novice in mind. Its multiple examples, however, are a help in finding your way through the program's many commands.

Colorcom/E is well designed and particularly well suited to serious users. One of its special features is DFT (direct file transfer), which lets you transfer files automatically to another Color Computer that is also running Colorcom/E (version 2.0 or later). This is an excellent feature for people who are, for example,

transferring files from a home-based computer to a business-based computer. Color Computer club members might also find this a useful programming feature.

Colorcom/E has options that you can select, including baud rate, printer baud rate, LPRINTing of the buffer, high-resolution formats, screen size, and automode. It lacks buffer editing, with the exception that it is possible to scroll through the buffer to select the part you want to print. Colorcom/E also lacks KSMs (key-stroke multipliers). One drawback to the terminal package is that it can enable only two "message" buffers, containing just 32 characters each. This is surprising in light of the overall high quality of craftsmanship that went into this program.

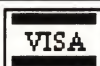
Colorcom/E's automode feature is rivaled by a similar feature of only one other terminal package in this review (Autoterm, to be covered in Part II next month). Automode lets you program the Color Computer to perform functions while you are doing other things—making coffee, sleeping, or walking the dog. It enables commands that create autoterminals for logging on, executing a task, getting predetermined information from a host computer, and logging off. An autoterminal can perform all or some of a two-way dialogue between computers.

Whether you want Colorcom/E to log on to a particular BBS or information service or get a stock report from Dow Jones, the automode feature can do it automatically. You have the choice of setting the automode to insert timed intervals between pauses while the computer waits for a response, or initiating a "wake-up" command, which activates a software clock and lets you set a time when you want the computer to perform a task. You need to have an autodial modem to use this feature, and you are limited to presetting one autoterminal at a time because there are no file-stacking capabilities in this mode.

With its many special features, Colorcom/E makes a valuable addition to the software libraries of serious users. And its price is reasonable. This program clearly represents the "second generation" of Color Computer terminal packages because of features such as automode. Although it doesn't have a text-editing feature for the buffer, you can print the buffer file. Its unique system of menu files and dual transmit and receive buffers make Colorcom/E one of the most advanced terminal programs for the Color Computer. ■



# DATAPOINT INTERNATIONAL



1-416-529-1319



PLEASE INCLUDE \$2.50 SHIPPING

## PRINTMASTER

A full featured screen print program that will work with any printer capable of dot addressable graphics is now available for the color computer. This value packed program should be on everyones 'must have' list. Just look at these powerful specifications:-

Automatic PMODE recognition.  
Menu driven or called from Basic

Vertical and horizontal stretching (zoom)

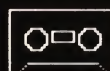
Full or partial screen rotation

8 color recognition & separation

Vertical & horizontal concatenation

Inverse printing.

All of the above will work on the full screen or on any portion that you specify.



\$33.95US

\$39.95Cdn



\$37.95US

\$33.95Cdn

## ROMMASTER

Rommaster is a circuit board with a rotary switch and sockets for three EPROM's (24 or 28 pin) that can be individually selected. You can now have up to three versions of Basic and three versions of Extended Basic in your Coco at the same time.

If you wish you can burn your own EPROM's and have them available on power up at the flick of a switch. If you develop software for sale it is essential that your programs be tested on all versions and configurations of ROM's before you release them.



\$39.95US

2/\$75

\$49.95Cdn

2/\$95

Double sided prototype boards



\$9.95US

\$12.95Cdn

Blank keyboard overlays

\$0.75US

\$0.99Cdn

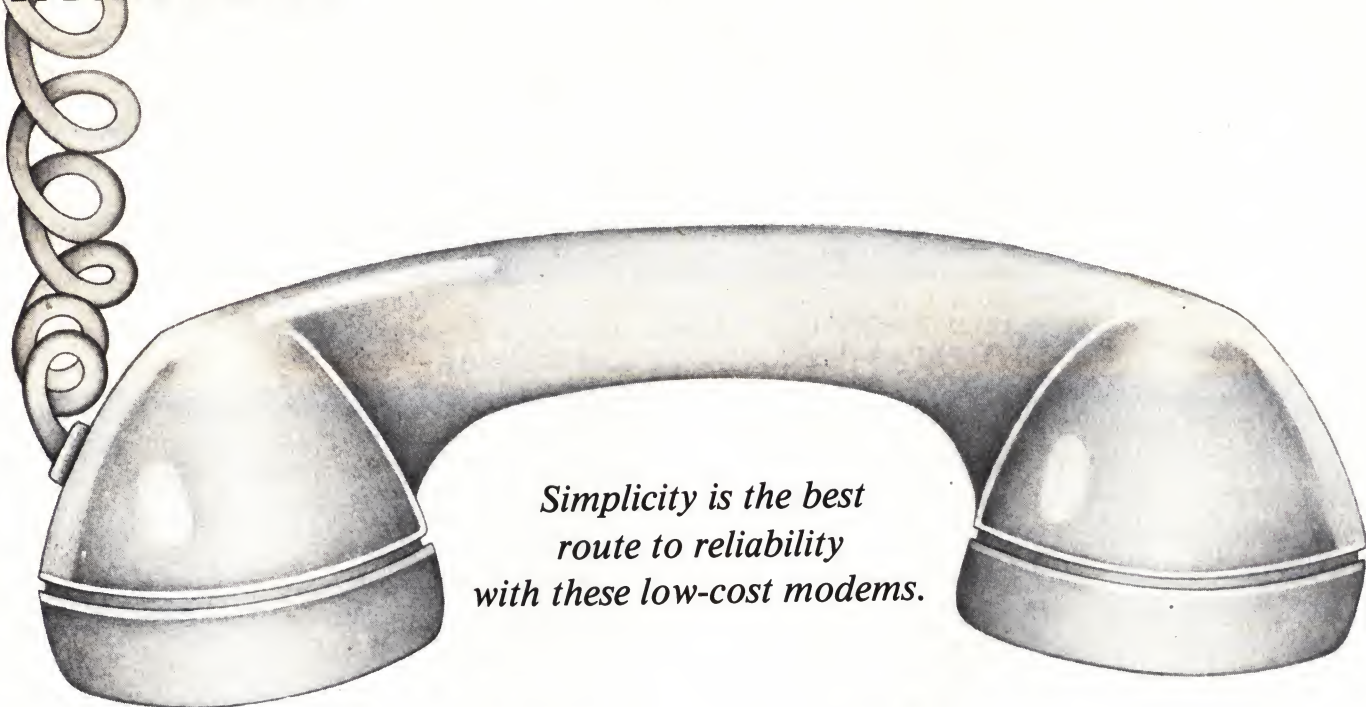
DATAPOINT  
INTERNATIONAL

125 SOUTH FIFTH STREET  
LEWISTON, N.Y. 14092

DATAPOINT  
INTERNATIONAL

420 FERGUSON AVE. N.  
HAMILTON, ONT., L8L 4Y9





*Simplicity is the best  
route to reliability  
with these low-cost modems.*

# YOUR FIRST MODEM

Connecting your CoCo to a world of information is nearly as easy as plugging in a toaster. But wading through features, prices, and your own requirements when buying a first modem or upgrading can sometimes be confusing. This review looks at several popular, modestly priced modems for the Color Computer.

A modem (for MODulator DEModulator) changes the digital signals of a computer to the analog signals used by the telephone network and back again. To do this it must be connected to the

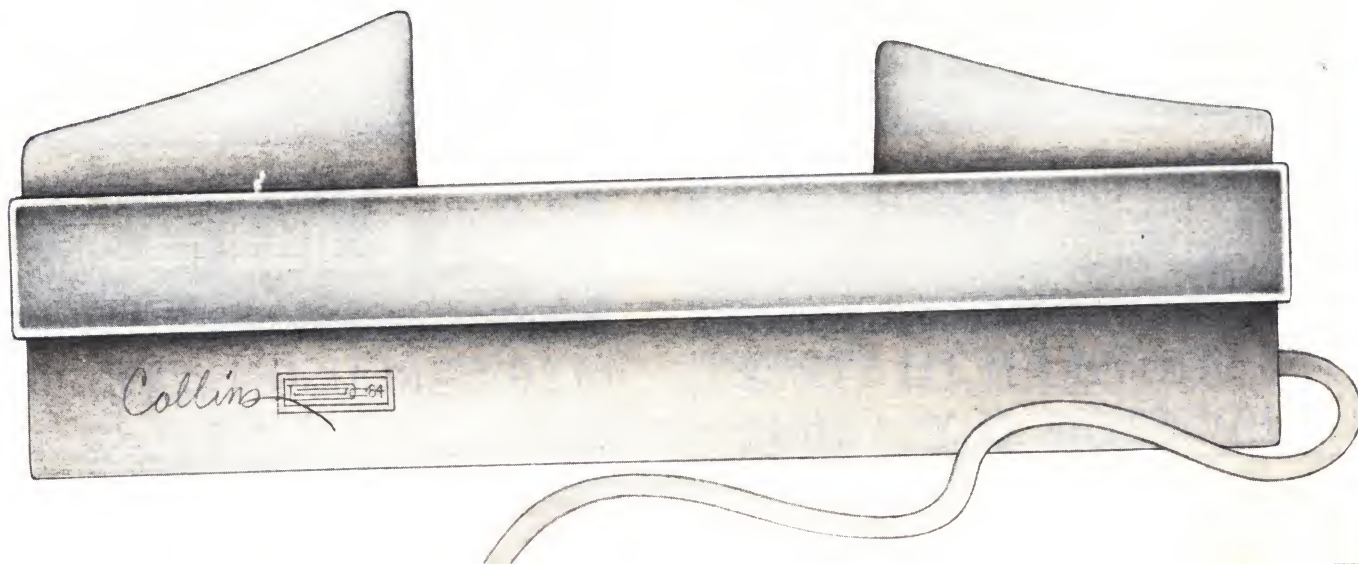
phone line and the computer. There are two ways to connect a modem to the telephone system. The newer modular phones with snap-in connectors work with direct-connect modems, which connect between the telephone and its wall jack. Acoustic-coupling modems accept the telephone's handset, which fits into rubber cups.

The modems tested in this review were connected to the CoCo 2 and several board versions of the older Color Computer. They were run with name-brand and homebrewed terminal software.

Their overall performance was excellent.

**Acoustic-Coupler AC-3**  
**1400 One Tandy Center**  
**Fort Worth, TX 76102**  
**Catalog No. 26-1174**  
**Modem cable (Cat. No. 26-3020, \$4.95)**  
**\$149.95 (new AC-4 is \$119.95)**

The Acoustic Coupler AC-3 is very easy to set up. It requires only one cable connection with the CoCo and a standard phone handset (trimline and princess phones are not compatible) for coupling.





*Eds. note—As this was written, Tandy was about to release the AC-4 (shown in the accompanying photograph), which will supersede the AC-3 in the company's modem line up. The differences between the two acoustic couplers are slight, according to Tandy. The major difference seems to be the price. The AC-4 (Catalog No. 26-1179) is selling for \$119.95—\$30 lower than the AC-3's price. Watch for the price of the remaining AC-3's to come down, too. Other differences are the color of the case and the positioning of the switches. One advantage of the AC-4 is that it accepts both round and square telephone handsets.*



*The Modem IB, AC-4, and Modem II from Radio Shack*

The AC-3 is a 300-baud modem that plugs directly into the serial I/O (input/output) port on the back of the CoCo. The AC-3 also has a 25-pin RS-232C jack for other computer configurations.

To use the AC-3, you make a telephone call, wait for the tone of the answering modem, place the phone handset in the coupler, and turn it on. When you finish the call, turn off the modem and replace the handset on the phone. Acoustic couplers are not as easy to use as direct-connect modems, but they are the only recourse if your telephone system does not have modular plugs.

The AC-3 takes up twice as much desk space as the other models reviewed here. It is 5¼ by 10¾ inches and weighs about 1½ pounds. (The AC-4 is one inch narrower.) Features of the AC-3 include full or half duplex, ready light, power-on light, and a three-position switch: originate, off, and answer. The AC-3 uses an external ac-dc converter that is included with the package.

The AC-3 is a well-constructed modem. The molded rubber handset fittings reduce acoustic echo. They also grip your handset, making it difficult to accidentally jar the modem and break a connection; if you lift your handset while it is coupled, the AC-3 stays in place.

The documentation that comes with

the AC-3 is well prepared and contains enough information to help you get on line. It omits some minor technical points, but never skimps on information necessary to operation. Although it is well written, the manual contains one minor error that could be confusing to first-time users. It labels the ready light, "Carrier LED indicator" and the power light, "Ready Indicator." The descriptions of the functions of these lights are correct, however.

The Acoustic Coupler AC-3 is a high-quality device; the only room it offers for improvement is in its size and documentation. If you don't have the modular telephone system, an acoustic coupler is your only alternative. Despite some minor drawbacks, the AC-3 is a good choice.

#### **DC Modem IB**

**Tandy**  
**1400 One Tandy Center**  
**Fort Worth, TX 76102**  
**Catalog No. 26-1175**  
**Modem cable (Cat. No. 26-3020, \$4.95)**  
**\$99.95**

The DC Modem IB has only one switch; how can you go wrong? To make connections with the Modem IB, you dial the telephone, wait for the tone, throw the Modem IB's single switch,

and hang up. Because it is a direct-connect modem, you don't have to fool with placing the phone on an acoustic coupler with each call. A direct-connect modem stays connected to your phone system and computer all the time.

The Modem IB is molded in off-white plastic to match the newer CoCos. It measures 6½ by 7½ by 2 inches—a little large for a direct-connect modem. It connects to the CoCo via a four-pin, DIN-connector port. This is the modem many CoCo owners are likely to choose because it is economical without sacrificing necessary features. It runs at 300 baud and operates in full or half duplex, depending on the settings your software uses.

There are two red LEDs and the mode switch, mentioned above, on top of the Modem IB. One LED is for power on. The other is the carrier-detect light; it glows when there is another modem on line.

The Modem IB has the same DB 25-pin connector as the AC-3, Modem II, and Mura MM-100. It has modular phone jacks and plugs for connection between the wall jack and your telephone. It is powered by an external ac adapter.

The documentation for the Modem IB is well designed but has proofing errors. It also lacks some important information about F.C.C. and telephone-





*The Volksmodem from Anchor Automation*

company regulations. It does not contain listings or charts for the DB 25-pin connector or four-pin, DIN-connector pin configurations.

The DC Modem IB performs very well and is easy to set up and operate. It suffers from the same minor problems as the AC-3: large size and skimpy documentation. But if you need only basic communication capability, the Modem IB might be the best choice. For many people, the nationwide support of Radio Shack stores easily offsets the better size and documentation of other modems.

#### **Modem II**

**Tandy**

**1400 One Tandy Center**

**Fort Worth, TX 76102**

**Catalog No. 26-1173**

**Modem cable (Cat. No. 26-3020, \$4.95)**

**\$199.95**

The Modem II is by far the most feature-laden modem reviewed here. Not surprisingly, it is also the most expensive. It has autodial, autoanswer, manual operation, remote/local test modes, and six LEDs for tracking line status and data flow. Although it offers features required for running a bulletin board or other remote operation, they cannot be

used with the Color Computer.

The Modem II is a full/half duplex, 300-baud modem packaged in the off-white color of the newer CoCos, and is the same size as the Modem IB. On its face, there are four switches for controlling operation. The first is a power switch, the second sets either the automatic or manual modes, the third sets either the answer or originate modes, and the fourth controls the two test modes.

The six LEDs of the Modem II inform you about power status, an off-the-hook condition, terminal readiness, carrier detection, transmission of data, and reception of data.

The Color Computer does not have a data-terminal-ready line in its serial I/O port; the terminal-readiness (TR) LED is not functional when used with the CoCo. Tandy includes a "force DTR" switch on the back of the Modem II for use with the CoCo and other three-wire devices. Without the use of the DTR, the CoCo cannot use the autodial features of the Modem II. All memory access and control is on the DTR line of the RS-232C port. The upshot of this is that you cannot use the Modem II as an autoanswer or autodial modem on the Color

Computer without "hacking-in" another line for DTR.

A section of the documentation dedicated to the use of the force DTR switch explains that it is included in the modem for CoCo owners. However, it neglects to point out how to set the switch for the Color Computer, or any other computer that might require three-wire operation. (The switch should be set to the off position.) The manual also incorrectly specifies only one cable for use with the CoCo—the more costly cable that does not take advantage of the four-pin DIN-cable port included specifically for use with the Color Computer.

The Modem II is disappointing because many of its features are not accessible from the Color Computer. If you want autoanswer, check into other modems. For autodial, consider purchasing a separate autodialer, such as Radio Shack's Duofone 93T, which stores 93 number strings of up to 32 digits. The Modem II gets low marks in performance because of the features it loses on the Color Computer in light of its price. If you accept it as an expensive modem without features, it handles data very well. Connected to another computer, the Modem II is a high-quality device.

#### **Volksmodem**

**Anchor Automation Inc.**

**6624 Valjean Ave.**

**Van Nuys, CA 91406**

**818-997-6493**

**E cable (\$12.95)**

**\$79.95**

You'll find one of Volksmodem's best features in its manual: It has a life-time warranty. Another nice feature contrasts with the Tandy modems, it is compact—3½ by 7½ inches—the smallest modem reviewed here.

The Volksmodem is named well. It is a no-frills modem, possessing only the bare necessities. It has no indicator lights and its two switches are of an inexpensive, sliding variety with large plastic flanges designed to resist the entry of dust. One switch turns the modem on or off, and the other selects full or half duplex.

The missing carrier-detect light is a valuable feature for those times when you think you have lost contact; the



# MOVING?

## SUBSCRIPTION PROBLEM?

Get help with your subscription by calling our new toll free number:

**1-800-645-9559 \***

between 9 a.m. and 5 p.m. EST,  
Monday-Friday.

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If moving, please give both your old address and new address.

\* New York State residents call 1-800-732-9119.

"Checkbook-Checkwriter II" is available for:  
TRS-80 Model I/III  
TRS-80 Color Computer

# Check Us Out!

✓ **Product:** Continuous fan-folded checks with dual-windowed envelopes, checkbook binder and software designed especially for computer use in the home. You can't get continuous checks like these anywhere in the world.

✓ **Savings:** Special package — including software — to get you started. 200 checks, 100 envelopes and binder—\$59.95. 500 checks, 300 envelopes and binder—\$79.95. Both with our versatile "Checkbook-Checkwriter II" program that will have you printing your checks the day you receive them.

**SPECIAL BONUS:**

- Each 250th customer—50% off your order;
- Each 500th customer—your order free;
- Each 1000th customer—your order free, and free check refills for life.

✓ **Guarantee:** Our checks and accessories are guaranteed to please you and guaranteed compatible with your bank. In fact, if you order a special package and aren't satisfied for any reason, simply return it for a full refund (including postage) and you can keep the "Checkbook-Checkwriter II" program.

Now CHECK WITH US...Order a special package with moneyback guarantee today! Just enclose a voided check for encoding information with your order. Or send today for our free information package. We guarantee you'll be pleased. Visa, M.C., AMEX orders welcome. Shipping: \$2.00 USA, \$5.00 Outside USA.

FAAX ADDRESS: MICRONET CS 70020 03M

**SYNERGETIC SOLUTIONS**

230

4715 SHEPHERD RD. • MULBERRY, FL 33860 • PHONE (813) 646-6557



# HARD DRIVE CLOSEOUT

We are closing out our hard drive product line on the Model-III and Model-IV computers. These hard drives are new and in factory prime condition. Each is covered by a 1-year warranty. They may be installed on the Model-III, Model-IV, or even the Model-4P. We are also selling bare hard drives, cases, host adaptors, controllers, and software.

Each system includes a new hard drive (not reconditioned), host adaptor, cable, fan cooled cabinet, switching power supply, all cables, and hard drive software for both LDOS 5.1.3 and TRDDOS 6.x.

5MByte Complete System	\$795
15MByte Complete System	\$1095
5MByte Shugart drive	\$295
15MByte Seagate drive	\$549
Host Adaptor, controller, software	\$295
Hard drive case, power supply, fan	\$225

TERMS: MC, VISA, Prepay Certified Check and COD. COD must prepay 20%.  
To order, call (505) 292-4182.

**J & M SYSTEMS, LTD.**

15100A Central SE  
Albuquerque, NM 87123

Circle Reader Service card #101

*Making little computers do big things.*



glowing light ensures that you are still on line. Not including an indicator such as this one on the Volksmodem seriously reduces its ease of use.

Another drawback to the design of the Volksmodem is that power is supplied by a 9-volt battery (instead of an ac adapter), which you must replace occasionally.

The Volksmodem has three ports; two are for modular phone connection and a third is a five-pin jack for connecting with a computer. Anchor Automation sells the E cable for connection with the Color Comptuer. The E cable, however, is on the short side; it is only 18 inches long as compared to the six-foot-long cable Radio Shack sells for its modems. And unlike all the other modems reviewed here, the Volksmodem does not come with a modular phone cord. Instead, it is part of the separate E-cable package.

A confusing feature of the Volksmodem is what Anchor calls "automatic answer and originate." This does not mean autoanswer or autodial. By automatic, Anchor means that the Volksmodem automatically sets itself for answer or originate after you place it on line.

Although once on line the Volksmodem performs as well as any modem in this price range, its short cables, missing indicator lights, and battery power (a plus for portable computers) add up to major inconvenience.

#### **MM-100 Manual Mini Modem Mura Corp.**

**177 Cantiaque Rock Road**

**West Bury, NY 11590**

**800-645-7268**

**516-935-3640 (NY)**

**\$79.95**

The MM-100 is a compact, direct-connect, 300-baud, full/half duplex modem. It is molded in off-white plastic with brown trim and takes up little space at 5 by 6 inches. It comes with its own 12-volt power supply that plugs into any wall outlet. The modular phone line for connection between modem and wall jack is hardwired into the modem, which saves money and reduces the possibility of a bad connection.

Unlike the Radio Shack modems, the

MM-100 does not include a special port for the Color Computer in its design. The cable for connecting the MM-100 to your CoCo must have a four-pin DIN connector for the CoCo and a RS-232C, DB 25-pin connector for the modem. Hardware hackers will find it easy to make their own cables; you can also purchase the cable from several vendors who advertise in *HOT CoCo*.

The documentation for this modem is excellent. It consists of a booklet that explains how to set up, operate, and maintain your MM-100 Mini Modem. It has a section titled "Frequently Asked Questions about Public Utility Charges for Your Muraphone," which discusses how to save money on connect and phone costs. It outlines F.C.C. regulations and phone-company policy concerning the use of a modem. The manual

also contains a pin chart with labels and numbers for all the pins in use to help you configure your own cables or better understand how the modem works.

Like the Radio Shack Modem IB, the MM-100 is simple to operate. You rarely need to consult the manual when operating this device—it has only one switch for off, answer, and originate. A quick glance is all that is needed to keep an eye on connection status, because Mura made the power-on light green and the carrier-detect light red—a nice feature.

The MM-100 gets the highest rating. Its only real drawback is that you have to go elsewhere for a cable. It offers everything the Modem IB offers, but its documentation is more thorough, its case is smaller, and its price is lower. The MM-100 is also manufactured with high-quality materials and workmanship. ■

*Table 1. A Comparative Look at Modem Features*

Features	AC-3	IB	II	VOLKS.	MM-100
Autodial	N	N	Y	N	N
Autoanswer	N	N	Y	N	N
Acoustic coupler	Y	N	N	N	N
Direct connect	N	Y	Y	Y	Y
Duplex switch	Y	N	N	Y	N
On/off switch	Y	Y	Y	Y	Y
Answer/originate	Y	Y	Y	Y <sup>1</sup>	Y
103 Bell compatible	Y	Y	Y	Y	Y
212 Bell compatible	N	N	N	N	N
Carrier-detect light	Y	Y	Y	N	Y
Power-on light	Y	Y	Y	N	Y
Transmit-data light	N	N	Y	N	N
Receive-data light	N	N	Y	N	N
Terminal-ready light	N	N	Y	N	N
Off-hook light	N	N	Y	N	N
Four-pin DIN connector	Y	Y	Y	N <sup>2</sup>	N
DB 25-pin connector	Y	Y	Y	N	Y
Power supply	Y	Y	Y	N	Y
Telephone cable	N/A	Y	Y	Y <sup>3</sup>	Y
Computer cable	N	N	N	N	N
Manual	Y	Y	Y	Y	Y
Programmable	N	N	Y <sup>4</sup>	N	N

#### **Notes**

<sup>1</sup> no switch

<sup>2</sup> five-pin DIN jack

<sup>3</sup> cable comes with computer cable

<sup>4</sup> not with the Color Computer



# Dealers Dealers Dealers

## Selling HOT

CoCo will make money for you. Consider the facts:

### Fact 1: Selling

**HOT CoCo** increases store traffic—our dealers tell us that **HOT CoCo** is one of the hottest-selling computer magazines on the newsstands.

### Fact 2: There

is a direct correlation between store traffic and sales—increase the number of people coming through your door and you'll increase sales.

**Fact 3: Fact 1 + Fact 2 = INCREASED SALES**, which means more money for you. And that's a fact.

For information on selling **HOT CoCo**, call 800-343-0728 (In N.H. call 924-9471) and speak with our direct sales manager. Or write to **HOT CoCo**, 80 Pine Street, Peterborough, NH 03458.

# HOT CoCo

80 Pine Street  
Peterborough, NH 03458  
800-343-0728

# SELL!



**NEW**

## Full Character Set FOR CoCo or CoCo2

**NEW**

Easy to install board adds:

- All 96 Standard ASCII Characters
- Upper & Lower Case Displayed Simultaneously with **NO** Inverse Video
- True Lower Case Descenders
- Braces & Vertical Bar Characters
- Slashed Zero
- Other Features

Board is hardware driven and requires **NO** software drivers. **NO** effect on **any** memory.

Enhances CoCo screen for:

- OS-9 Operating System Programming
- "C" Language Programming
- Word Processing
- Communications Terminal Modes

PRICE.....\$38.00

(+\$2.00 shipping/handling if charge)

**CoCo Devices**

**Box 677, Seabrook, TX 77586**

**713-474-3232**

Visa

(Specify CoCo or CoCo2)

Mastercard

Circle Reader Service card #75



## Mouse Technological Software For The Color Computer!

*Many Companies call their  
Home and Business Software  
User Friendly ...*

**ONLY ONE CALLS IT**

# Child's Play™

**COMING  
SOON!**



Send for  
**FREE Catalog**

**TCE**

**BUSINESS DIVISION**  
P.O. BOX 2477  
GAITHERSBURG, MD 20879  
1-(301) 963-3848



Circle Reader Service card #386



SCIENCE/GEOGRAPHY  
BY R. DEWAIN POE

# Orbital Observations



*Use your CoCo to track  
the Space Shuttle as it  
circles the globe.*

*System Requirements*

16K RAM  
Extended Color Basic



**W**orld Map and Satellite Tracker are programs that show the amazing graphics capability of the CoCo. I wrote World Map first and then decided to create a program to track the path of a satellite or the Space Shuttle around the earth, which resulted in Satellite Tracker.

### World Map

Deriving the coordinates for plotting the map on the graphics screen was a lengthy and tedious process. I used a Mercator projection and the PMODE 3 grid, which provides color in the map. If you can use black and white, run this map in PMODE 4 (change line 30), and you'll get a little better resolution. However, the plotting circle, which will be black, won't show up on a black land mass. In either PMODE 3 or 4, however, you have a nice map to use for many programming purposes.

### Operation

The computer draws the map while it displays the title page. After about five seconds, a list of commands appears at the bottom of the screen.

Press M to view the map. You'll see a Mercator projection of the world with land masses in green and the seas in blue. (Adjust the color on your monitor.) The computer draws the equator, the Greenwich meridian, and degree markings along the bottom and the right side. Marks along the bottom indicate 30 degrees of longitude each. Marks along the side indicate 10 degrees of latitude each. Take a moment to appreciate the detail of the map, such as the Falkland Islands at the foot of South America.

Press P to plot a point on the map. The computer reverts to the text screen

and asks you for the latitude and longitude of the desired point. Enter each in degrees and minutes with the appropriate letter for the hemisphere and press enter. After you give the coordinates, the computer again displays the map and draws a red circle around the point that you requested. As many points as you want can be plotted on the map by repeating this process. Note that you cannot locate points above 80 degrees north or below 54 degrees south on the map. Press C to clear the map of all plotted points. The computer redraws the map, eliminating the points.

The program logic is straightforward. A small main program allows for command input and plotting of points. Three subroutines do the lengthy work or handle exceptional conditions. The one for determining the plot coordinates is particularly necessary since latitude isn't linear on a Mercator projection. Notice especially that the Map subroutine is sectioned and lines are identified with the countries they draw. This permits easy location of points if you want to change or add something.

### Possible Uses

This program requires 5K of RAM, and if you allow for PMODE 3 or 4 graphics, you can use the Map subroutine in any program. In a 16K machine, this leaves about 3.4K for programming various uses, such as an educational program that would test identification of continents or seas. You would have to add lines to the map to section off areas. Then, using a white (buff) background and the PAINT command, the computer would fill in an area, pause, and then switch to the text screen to ask for identification either as a direct answer or

part of a multiple-choice question.

Instead of continents or seas, you might light up major cities of the world (using PSET or a small circle) and ask for their identification. A third possibility is to use the map to track satellites—and that leads to the next program.

### Satellite Tracker

This program requires that the computer be dedicated to one task and left on for a lengthy period of time. Hook your computer up to a small black-and-white TV placed near your color console, and have your own tracking map to show you where a satellite or the Space Shuttle is at all times. While you listen to the reports about the activities on the board, you can see where the shuttle is and what lands it will pass over next.

In the fast mode, you can use the program to compare the orbits of different satellites or to see where a satellite or the Shuttle will be after a certain length of time. You can show students that varying the altitude and inclination of an orbit changes the period of revolution around the Earth and the distance the satellite travels above and below the equator. Knowing when a satellite will pass overhead could allow a visual sighting.

### Operation

A title page covers an 8-second delay as the computer draws the world map. A list of program commands then appears below the title. Make note of these commands because they aren't displayed again during program operation. The only command that works at this time is T.

Press T for a new track for either a satellite or the Space Shuttle. The computer then asks whether the track starts from launch or an initial point in orbit.



Launch is at Cape Canaveral. If you're tracking from an initial point in orbit, you must give the latitude and longitude directly beneath that point.

Then the computer asks for orbital data, beginning with the orbit's altitude. It assumes a circular orbit. If it is not circular, give the average of the apogee and perigee. The track might be less accurate in this case. The altitude must be given in kilometers.

The computer then requests the orbit's inclination to the equator. This must be equal to, or greater than, the latitude of the initial point, or 28.5 degrees if tracking from launch.

Orbital data for the Space Shuttle is often given in the newspaper or on TV prior to a launch. The Shuttle's orbital altitude ranges from 185 km to 1,250 km, and its inclination from 28.5 degrees to about 57 degrees.

After you enter the initial orbit, the computer asks for the initial time to be set on the in-flight clock. This can be set up to 99 days before or after launch. If starting from launch, enter three zeroes (or simply two commas). If the time is prior to launch (a countdown), then enter the days, hours, and minutes as negative numbers. After you enter this information, the computer asks for your command to start the clock and the track. Press enter to start.

### The Map and the Track

The computer immediately displays the world map and starts the in-flight clock that you'll see at the bottom of the screen. The computer counts off seconds in its normal mode. Look for a dot at your satellite's initial position. If it is over the sea, it is black; if over land, it is white. If you're tracking from launch, look for a white dot at Cape Canaveral, FL.

Don't expect the track to move fast if you are in the normal mode. After all, it takes approximately 90 minutes for the satellite to go around the Earth. To watch a satellite make its way around the Earth in seconds instead of hours, press F for fast mode. The computer speeds up the clock and counts minutes at the rate of about one per second. You see the satellite make its journey to the east around the Earth, moving alternately north and south of the equator. Pressing N puts the computer back in normal mode.

### Other Commands

You can clean the map of previous orbital tracks, while tracking a satellite, by pressing C. First, you must put the computer in fast mode, however. After redrawing the map, the computer picks up the track where it left off. Press N to return to normal mode. You have to adjust the clock at this point. If the clock is ahead of the correct time, then pause the computer by pressing the shift and @ keys. The clock will stop. Touching another key restarts it. (If the clock is behind, use the fast mode to move ahead.)

To end a track and rerun the program, first move to the fast mode by pressing F, then press R. (Of course, you could just press the break key and type "RUN".) If you want to leave the orbital track of one satellite on the map and track another satellite's orbit for comparison, move to the fast mode and press T. You're then back at the text screen and the computer asks for the new orbital information. After you enter this, the computer returns to the map where you'll see the old track and the beginning of the new one. (Note: You will be in the fast mode upon return.)

### Plotting from Launch

Notice that the track of the satellite from launch is initially plotted with points that are close together. Then after 9 minutes, the points are spaced further apart. This shows the satellite climbing to orbital velocity in the first 9 minutes. Orbital insertion occurs approximately 2,000 km downrange.

Kepler's Third Law of planetary motion—the square of the sidereal period is directly proportional to the cube of the semimajor axis of the orbit ( $p^2 = kA^3$ )—and the fact that geosynchronous orbit occurs at an altitude of 35,785 km are the basis of the orbital calculations. From this, you can calculate the sidereal period of the satellite, given its altitude. You assume a circular orbit with a constant longitudinal rate. You then calculate the synodic (relative to Earth) period and sidereal and synodic velocities (degrees/minute).

From the given initial latitude and longitude, along with the initial northerly or southerly movement, and the orbital inclination, you can find an origin (LO) for the sine graph. This is done in lines

250–300. A sidereal longitudinal position (LS) is kept (as if the Earth didn't turn) and used with LO to calculate current latitude (K). Current longitude (L) is simply the initial longitude plus the synodic velocity times the elapsed time. The actual latitude and longitude is then converted into a plotting position on the map.

The launch sequence assumes some data I found on the Space Shuttle. Orbital insertion occurs at liftoff plus 9.5 minutes, 2,000 km downrange from Canaveral, at an altitude of 115 km. Speed is then 26,761 km/hr. Assuming 1 degree of longitude per 100 km at this latitude, an initial VE is calculated, using the given orbital inclination, for the time from liftoff to insertion.

After orbital insertion at 115 km, you assume the Shuttle moves immediately (within half an orbit) to an altitude of 185 km, the lowest operational orbit. You use an average altitude of 150 km during this time (line 520). Having reached 185 km, the Shuttle reaches its final orbital altitude within one-half orbit. (I know that is an unrealistic assumption, but I had to keep the program simple.) You use another average altitude for this period of time (line 530). After the appropriate period, set the altitude to the final value (line 540).

The timing delays for approximating real time are in lines 740–750. Line 740 allows for the printing of single-digit seconds while line 750 takes care of the rest.

There are no checks on the data that you enter since this would take memory that is simply not available on my 16K machine. If you enter erroneous data (e.g., unrealistic latitudes or longitudes), you'll probably get a function-call error.

If there are any astrophysicists out there who can suggest improvements for a program to track a satellite, be my guests. However, this approach is theoretically valid, and it seems to work. You can judge for yourself when you track the next Space Shuttle. ■

*continued*

---

*Address correspondence to R. De-  
wain Poe, 9152 Trelawney Court, Cin-  
cinnati, OH 45239.*



# THE NEW GENERATION

## COMPLETE SG-10 PRINTER SYSTEM

All the performance, features, and reliability of the  
Star Micronics GEMINI-10X PLUS:

120 CPS with true descenders.

NLQ (Near Letter Quality).

2K BUFFER accessible.

HEX DUMP for Machine Language listings.

ULTRA HI bit image graphics.

20% INCREASE in throughput.

1 YEAR MICRONICS WARRANTY

Servicable at over 4000 locations.

GEMINI-10  
GEMINI-10X  
**SG-10**

**COMPLETE  
SYSTEM**

**NOTHING MORE TO BUY**

- SG-10 PRINTER
- BLUE STREAK INTERFACE
- SUPER GEMPRINT
- TYPE SELECTION/TUTORIAL

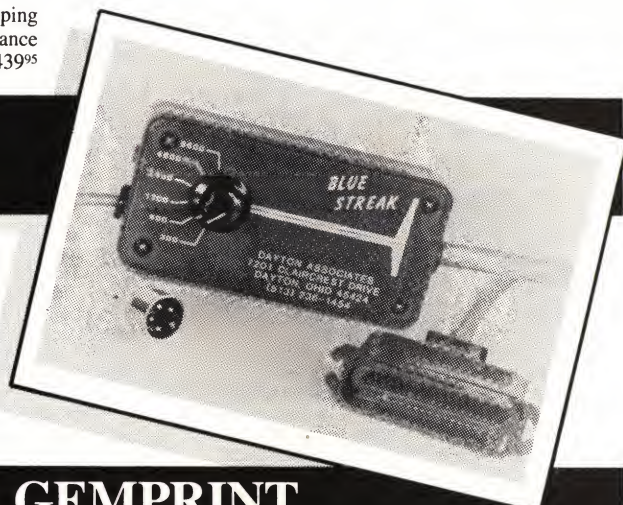
**\$299<sup>95</sup>** + \$10 Shipping  
and Insurance  
SG-15-439<sup>95</sup>

## BLUE STREAK SERIAL TO PARALLEL INTERFACE

- RUN COCO I or II to PARALLEL PRINTER
- 300, 600, 1200, 2400, 4800, 9600 SWITCHABLE BAUD RATES
- AC POWER OPTIONAL-NOT NEEDED WITH SG-10 PRINTER
- COMPLETE WITH ALL CABLES AND CONNECTORS
- 180 DAY WARRANTY



**54<sup>95</sup>** SHIPPING (SPECIFY PRINTER)  
PAID!



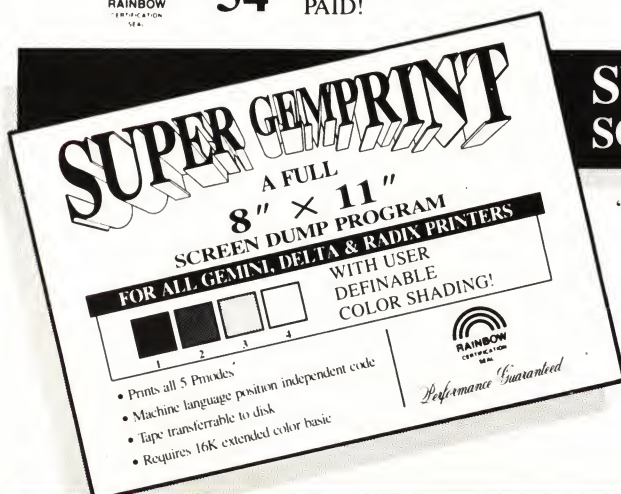
## SUPER GEMPRINT SCREEN DUMP PROGRAM

"Overall, Super Gemprint is very well-written and documented."  
—Rainbow December 84 review.

## BONUS! TYPE SELECTION/TUTORIAL PROGRAM FREE WITH SUPER GEMPRINT

Menu driven program for the CoCo. Teaches and shows the new  
user the numerous features of the SG-10.

SUPER GEMPRINT AND  
TYPE SELECTION/TUTORIAL PROGRAM **\$17<sup>95</sup>** + \$2 Shipping  
and Handling



**DAYTON ASSOCIATES, INC.**

DUN & BRADSTREET LISTED

7201 CLAIRCREST BLDG. C • DAYTON, OHIO 45424

(513) 236-1454

OHIO RESIDENTS ADD 6% SALES TAX

C.O.D. ADD \$2.00

**star**  
MICRONICS • INC.  
AUTHORIZED  
DEALER





# Program Listing 1. World Map

```

10 REM * WORLD MAP/PLOT *
20 REM R.D.POE 6/23/83
30 PMODE3,1:PCLEAR4:PCLS:CLS
40 PRINT@137,STRING$(13,"")
50 PRINT@203,"WORLD MAP"
60 PRINT@265,STRING$(13,"")
70 GOSUB 600 'DRAW MAP UNSEEN
80 PRINT@357,"PRESS <M> TO SEE M
AP"
90 PRINT@389,"PRESS <P> TO PLOT
POINT"
95 PRINT@421,"PRESS <C> TO CLEAN
MAP"
100 K$=INKEY$:IF K$="" THEN100
105 IF K$="M" THEN SCREEN1,1
110 IF K$="P" THEN 125
115 IF K$="C" THEN GOSUB600
120 GOTO 100
125 CLS:PRINT
130 PRINT" TO PLOT POSITION, ENT
ER:":PRINT
140 PRINT" LATITUDE, IN DEG, MIN
,N/S"
150 INPUT" ";KD,KM,NS$:PRINT
160 PRINT" LONGITUDE, IN DEG, MI
N, E/W"
170 INPUT" ";LD,LM,EW$
180 REM CONVERT LAT/LONG
190 K = KD + KM/60
200 IF NS$="S" THEN K=-K
210 L = LD + LM/60
220 IF EW$="W" THEN L=-L
230 GOSUB 300: 'FOR XP,YP
240 REM PLOT POINT WITH CIRCLE
250 SCREEN 1,1
260 FOR I=1 TO 200:NEXT
270 CIRCLE(XP,YP),8,8
280 GOTO100
290 '
300 REM DETERMINE COORDINATES
310 IF K<-54 THEN 500
320 IF K>-50 THEN 340
330 YP=188-(K+60)*8/5:GOTO460
340 IF K>-20 THEN 360
350 YP=172-(K+50)*6/5:GOTO460
360 IF K>+20 THEN 380
370 YP=136-(K+20):GOTO460
380 IF K>+50 THEN 400
390 YP=96-(K-20)*6/5:GOTO460
400 IF K>+60 THEN 420
410 YP=60-(K-50)*8/5:GOTO460
420 IF K>+70 THEN 440
430 YP=44-(K-60)*2:GOTO460
440 IF K>+80 THEN 500
450 YP=24-(K-70)*12/5
460 YP=INT(YP+.5)
470 IF L>90 THEN XP=8+(L-90)*2/
3 ELSE XP=188+L*2/3
480 XP=INT(XP+.5)
490 RETURN
500 REM OUT OF BOUNDS
510 PRINT
520 IF K>0 THEN PRINT" LATITUDE
IS TOO HIGH"
530 IF K<0 THEN PRINT" LATITUDE
IS TOO LOW"
540 PRINT" TO PLOT ON THIS MAP."

550 PRINT
560 PRINT" ENTER NEW COMMAND (M,
P,C)"
570 GOTO100
580 '
600 REM *** WORLD MAP ***
610 REM RD POE, RVSD 6/83

620 COLOR6,7:PCLS
630 'NORTH AMERICA
640 DRAW"BM82,20;M78,25;M80,31;M
76,31;M76,34;M80,34;M80,36;M78,4
0;M80,45;M82,46;M80,49;M76,52;M8
0,51;M84,47"
650 DRAW"M88,41;M100,45;M108,60;
M108,75;M112,90;M112,80;M118,93;
M118,96;M126,99;M132,105;M136,10
6;M132,103;M130,99"
660 DRAW"M130,96;M126,96;M122,92
;M122,87;M124,84;M132,84;M134,89
;134,83;M136,77;M136,73;M144,65;
M146,65;M146,67"
670 DRAW"M148,64;M144,64;M140,59
;M148,59;M150,56;M142,44;M142,46
;M138,46;M138,41;M134,40;M132,59
;M130,55;M124,48"
680 DRAW"M124,40;M132,31;M132,26
;M130,28;M124,20;M124,28;M114,25
;M108,27;M102,27;M98,24;M82,20"
690 PAINT(84,22),6,6
700 'SOUTH AMERICA
710 DRAW"BM136,106;M136,112;M134
,115;M132,120;M136,131;M140,134;
M140,139;M136,155;M136,170;M138,
175;M144,177;M144,176;M142,173;M
142,168;M144,159;M148,158"
720 DRAW"M156,144;M156,141;M158,
138;M160,138;M162,134;M164,125;M
166,123;M166,121;M158,116;M158,1
12;M154,111;M150,107;M146,107;M1
42,105;M136,106;BM148,173;M150,1
74"
730 PAINT(142,106),6,6
740 DRAW"BM132,93;M134,93;M140,9
5;M136,95;M132,93" 'CUBA
750 DRAW"BM104,21;M106,16;M112,1
7;M114,16;M114,20;M118,21;M116,2
3;M110,23;M104,21":PAINT(108,18)
,6,6 'VICTORI ISLAND
760 DRAW"BM128,12;M134,12;M142,2
2;M142,27;M144,31;M142,41;M136,3
7;M134,37;M134,35;M138,35;M138,2
6;M134,23;M130,23;M128,17;M128,1
2":PAINT(130,13),6,6 'BAFFIN IS.

770 DRAW"BM150,62;M152,56;M152,5
8;M154,58;M154,62;M150,62":PAINT
(152,61),6,6 'NEWFOUNDLAND
780 DRAW"BM144,0;M144,2;M140,4;M
142,12;M148,12;M152,23;M152,32;M
156,42;M158,43;M162,34;M172,26;M
174,0":PAINT(146,0),6,6 'GREENLA
ND
790 DRAW"BM172,34;M178,32;M180,3
4;M176,37;M174,37;M172,36;M172,3
4":PAINT(176,35),6,6 'ICELAND
800 DRAW"BM78,94;M82,96;M82,97;M
78,95;M78,94" 'HAWAII
810 'EAST ASIA
820 DRAW"BM8,11;M14,10;M18,7;M22
,9;M22,14;M34,15;M36,23;M40,22;M
42,18;M54,20;M54,23;M64,23;M72,3
1;M70,34;M66,31;M64,34;M66,37;M6
0,43"
830 DRAW"M58,43;M54,45;M54,51;M5
2,55;M50,51;M50,49;M52,44;M52,42
;M50,42;M48,45;M40,44;M36,52;M40
,53;M40,59;M36,66;M34,66;M32,72;
M34,77;M32,78;M30,72;M26,73"
840 DRAW"M28,82;M28,88;M22,95;M1
8,95;M18,97;M20,102;M20,105;M18,
106;M14,104;M14,108;M16,115;M14,
113;M10,99;M8,101;M8,11"
850 PAINT(18,8),6,6:PAINT(52,50)
,6,6
860 DRAW"BM36,80;M36,78;M40,72;M

42,65;M44,66;M42,73;M36,80":PAIN
T(40,74),6,6 'JAPAN
870 DRAW"BM28,92;M28,94;BM30,91;
M30,93" 'TAIWAN
880 DRAW"BM30,98;M32,98;M32,100;
M30,101;M30,103;M28,102;M28,100;
M30,98":PAINT(30,99),6,6:DRAW"BM
32,103;M34,104;M30,106;BM30,108;
M34,106;M34,110;M32,110;M32,108M
30,108" 'PHILLIPINE ISLANDS
890 DRAW"BM24,109;M26,110;M24,11
3;M26,114;M24,119;M20,118;M20,11
4;M24,109":PAINT(22,115),6,6:DRA
W"BM30,116;M28,116;M26,119;M28,1
19;M28,116" 'BORNEO-CELEBES
900 DRAW"BM8,112;M12,115;M16,119
;M22,121;M14,120;M8,113;M8,112":
PAINT(12,116),6,6 'SUMATRA-JAVA
910 DRAW"BM34,116;M38,117;M44,12
1;M46,125;M42,123;M38,123;M36,11
9;M34,118;M34,116":PAINT(40,120)
,6,6 'NEW GUINEA
920 DRAW"BM42,126;M44,135;M52,14
6;M46,158;M40,158;M34,150;M22,15
3;M18,139;M32,128;M36,128;M36,13
1;M40,134;M42,126":PAINT(34,129)
,6,6 'AUSTRALIA
930 DRAW"BM62,153;M66,157;M60,16
5;M56,163;M62,157;M62,153":PAINT(
60,163),6,6 'NEW ZEALAND
940 'WESTERN ASIA-EUROPE
950 DRAW"BM246,11;M240,15;M234,1
5;M230,24;M226,23;M216,30;M206,2
4;M192,39;M192,45;M194,46;M196,4
6;M196,51;M198,51;M200,44;M200,4
0;M204,32;M206,33;M204,38;M206,4
3;M202,53" 'RUSSIA-SCANDINAVIA
960 DRAW"BM194,53;M192,48;M192,53
;M184,61;M186,63;M186,67;M180,67
;M180,75;M184,77;M186,75;M190,69
;M194,68;M198,73;M196,74;M198,74
;M200,73;M198,68;M200,68;M204,74
;M210,63" 'EUROPE
970 DRAW"BM212,64;M216,63;M216,66
;M220,69;M220,71;M216,71;M214,70
;M212,70;M208,71;M208,76;M216,76
;M214,83" 'BLACK SEA-PALESTINE
980 DRAW"BM208,83;M202,81;M200,82
;M194,79;M194,78;M190,78;M186,79
;M184,79;M184,78;M182,79;M180,80
;M174,95;M174,103;M182,112;M190,
111;M194,112" 'NORTH AFRICA
990 DRAW"BM194,117;M196,120;M198,
126;M196,131;M196,135;M198,139;M
200,152;M206,151;M212,141;M212,1
36;M216,130;M216,120;M222,106;M2
16,107" 'SOUTH AFRICA
1000 DRAW"BM210,86;M214,86;M220,1
03;M226,101;M228,96;M226,94;M224
,94;M222,89;M224,89;M230,93;M232
,93;M236,95;M240,106;M242,104;M2
42,100;M246,94;M246,11" 'RED SEA
--INDIA
1010 DRAW"BM224,75;M224,71;M222,
66;M222,64;M226,63;M228,65;M226,
66;M226,68;M228,70;M228,75;M224,
75" 'CASPIAN SEA
1020 PAINT(244,14),6,6 'ASIA,ETC

1030 DRAW"BM218,141;M218,133;M22
2,128;M224,131;M222,141;M218,141
":PAINT(220,144),6,6 'MADAGASCAR

1040 DRAW"BM18445;M186,50;M186,5
6;M182,56;M182,53;M184,52;M184,5
0;M182,47;M184,45;M184,48":PAINT
(184,55),6,6:DRAW"BM178,54;M178,

```

Listing continued



## Saguaro Software



### EAGLE

A graphic-enhanced lunar lander simulator. The pilot breaks out of lunar orbit and attempts a soft landing on the lunar surface. Joysticks control thrust and craft altitude and information is continually displayed on horizontal and vertical velocities, acceleration values, vertical and horizontal distances from target, fuel consumption and much more. On advanced levels, problems such as fuel leaks and computer screen failures can provide hair-raising final approaches. Disk version allows choice of landing site between Mars and Earth's moon. Takeoffs from the surface can be made and the upper stage placed back in orbit. The simulation is as educational as it is fun and exciting. A great tool for that future astronaut or physicist. 32K, 2 joysticks required. Available in tape or an enhanced disk version.

**Tape - \$24.95 Disk or Amdek - \$29.95**

### Sketchpad

A graphics drawing program designed to provide the computer hobbyist with easy manipulation of the powerful graphics capabilities of the CoCo. Advanced programmers can design graphics screens and characters for Basic and ML programs and games. Sketchpad was used to create the graphics for "Eagle" (see above). 32K, 2 Joysticks and disk drive required. Disk or Amdek - \$29.95.

### Testmaker

Menu-driven series that creates multi-choice & T/F tests. Output to screen or printer. 32K Disk. \$29.95.

### Maycode

A 6809 disassembler. Reads & converts object codes to 6809 Assem. Lang Mnemonics. 16K min. Tape. \$24.95. Disk or Amdek - \$29.95.

### TDIR

A menu-driven tape directory. Allows complete directory control. 16K Tape. \$24.95.

### Alphacopy

A disk organizer - writes the programs in alphabetical order on your disk. 32K Disk. \$24.95.

### The Digestive System

An educational quiz game for 2 players that covers different aspects of the human digestive system. Each question is assigned a point value relative to its difficulty. A fun way to learn about a not-so-fun subject. 16K.

### The Circulatory System

Using the same format as "The Digestive System," this program covers the heart, lungs, veins, arteries, blood, etc. 16K.

**Both Only:**

**Tape - \$19.95. Disk or Amdek - \$24.95.**

### Co-Co Receivables

Keep track of all those accounts with current list of accounts, statement printing, last activity date, and current month's transactions, debits & credits. Disk storage of data. 32K disk. \$29.95.

### Stars Of America

Education should be fun - this program is just that! This tutorial uses 25 of the superstars of American history, from George Washington to Ronald Reagan.

### The Civil War

A challenging two-person game. Questions cover Carpetbaggers to the Battle of Vicksburg. Points are assigned according to the difficulty of the question, scores are displayed throughout the game.

**Both Only: Tape \$19.95. Disk \$24.95**

### Treasure Hunt

A graphics text adventure. You walk with our graphics character through desert, mountains and city to seek the illusive treasure of gold. Super graphics with a person who walks with you at each turn. Disk & Amdek only. \$29.95.

### Do Or Die

This year is 4001 A.D. You are a cargo trucker delivering a load in the Dorian star system. Your mission is to get back to your home planet of Irit, alive. Can you survive the journey? Tape - \$24.95. Disk or Amdek - \$29.95.

### Loveless Manor

Trapped in a bedroom by your evil aunt, you've admired Queen Cinderella's castle in the distance... and you've just discovered she's a distant cousin. Can you escape to her protection? 32K. Great word adventure. Tape - \$19.95. Disk or Amdek - \$24.95.

### Raid On Burdanovka

Your mission, should you decide to accept it, is to steal Russia's newest weapon and save the world. Text adventure with 50 rooms. Tape - \$24.95. Disk or Amdek - \$29.95.

### Search For The Llangh

After years of study & searching, you have at last traced the alien race of Llangh to this valley. Now your quest for the power of Llangh begins! Tape - \$24.95. Disk or Amdek - \$29.95.

### OTHXO

Othello: machine language game for the 16K Co-Co. 2 modes of play - you against a friend or you against the computer. When playing the computer, it will play hard or easy. In either, you had better think hard! Object of the game is to change the opponent's spots to yours by placing your marker at the end of a row started by your marker. Not as easy as it sounds! Tape, \$24.95. Disk or Amdek, \$29.95.

### Co-Co Keno

Bring Las Vegas' Keno game home with Co-Co Keno. Bet \$1, \$3 or \$5 & mark off 1 to 15 spots... can you beat the odds & win \$50,000? 16K, high resolution screen. Keno chart print included. Tape, \$24.95. Disk or Amdek - \$29.95.

### Ultimate Bingo

The ultimate in Bingo! Use your LP 7 or 8 to print the number of cards you desire. Choose from 3 speeds of play & even pause the game to check winner's card.

### Jackpot

Pull the one-arm bandit's arm - see if you can beat the odds!

**Both Only:**

**Tape - \$19.95 Disk or Amdek - \$24.95**

### Confusion

3 modes of play: 3-4, 5-6 or 7 letter words. You select time (30 or 60 seconds) to govern how long you get to unscramble the words. First person with ten correct wins! Tape - \$19.95. Disk or Amdek - \$24.95.

### Stars Of America

Education should be fun - this program is just that! This tutorial uses 25 of the superstars of American history, from George Washington to Ronald Reagan.

### The Civil War

A challenging two-person game. Questions cover Carpetbaggers to the Battle of Vicksburg. Points are assigned according to the difficulty of the question, scores are displayed throughout the game.

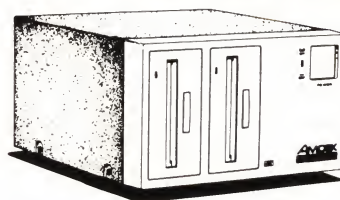
**Both Only:**

**Tape \$19.95 Disk \$24.95**

### History From 1863 To 1976

On two 16K non-extended tapes. For 1-4 people. Informative & fun way to learn important dates in world history. Written for students by a teacher. Tape - \$19.95. Disk or Amdek - \$24.95.

## Hardware, Too!

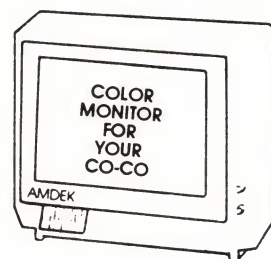


### Amdek Dual 3" Disk Drive

# \$349

Includes Box Of Diskettes  
And Drive Cable

**If You Can Find A Better Advertised Price, Show Us...We'll Beat It!**



### Amdek Color Monitors

Color 300

**\$269**

Color 500

**\$399**

### Video Reverser Switch

Have reverse video at the flip of a switch! Easy installation, no soldering, works on all models.

# \$14.95

ESK 5 1/4" Disks - SSDD Box Of 10 **\$16**

ESK 5 1/4" Disks - DSDD Box Of 10 **\$21**

100% Tested Disk • 10 Year Exchange Warranty

Amdek 3" Diskettes Box Of 10 **\$35**

## This Month's Special!

### FILMASTR

A powerful Data Management System for the CoCo. FILMASTR combines the best features of the big systems to provide a combination of speed, power & simplicity that can't be beat.

**Tape - \$19.75**

**Disk - \$22.75**

Reg. 23.75

Reg. 26.75

Good Through 3/30/85 • While Supply Lasts

### Send For Our Catalog

# \$1.00 Shipping!

**We'll Ship Your Order For \$1.00**

**To Anywhere In The USA**

Outside USA - \$2.00 Per Program (\$6.00 Max)



24 HOUR ORDER LINE

# 602-623-3321

VISA®

7331 E. Beverly Drive • Tucson, AZ. 85710

Arizona Residents Add 7% Tax • C.O.D. Orders Add \$2.00

Add \$1.00 For Shipping

Dealer Inquiries Invited • Some Quantities Limited

**AUTHORS! ASK ABOUT OUR ROYALTY PROGRAM**

# Saguaro Software



Listing continued

```

50:M180,50:M180,53:M178,54"'BRIT
ISH IS.
1050 'EQUATOR AND LAT. MARKS
1060 DRAW"BM0,116;M254,116;BM250
,23;M254,23;BM250,43;M254,43;BM2
50,59;M254,59;BM250,71;M254,71;B
M250,83;M254,83;BM250,95;M254,95
"
1070 DRAW"BM250,105;M254,105;BM2
50,125;M254,125;BM250,135;M254,1
35;BM250,147;M254,147;BM250,159;
M254,159;BM250,171;M254,171;BM25
0,187;M254,187"
1080 'GREENWICH AND LONG. MARKS
1090 DRAW"BM188,0;M188,187;BM8,1
84;M8,187;BM28,184;M28,187;BM48,
184;M48,187;BM68,184;M68,187;BM8
8,184;M88,187;BM108,184;M108,187
;BM128,184;M128,187"
1100 DRAW"BM148,184;M148,187;BM1
68,184;M168,187;BM208,184;M208,1
87;BM228,184;M228,187;BM247,184;
M247,187"
1110 FOR I=1 TO 500:NEXT
1120 RETURN

```

### Program Listing 2. Satellite Tracker

```

10 REM * SAT-TRK *
20 REM RD POE 6/83
30 PMODE4,1:PCLEAR4:CLEAR25:CLS
40 PRINT@103,"SATELLITE TRACKER"
:PRINT@135,STRING$(17,"*")
50 GOSUB1700:GOSUB1200:PI=3.1415
926
60 PRINT@199,"COMMANDS:"
65 PRINT@264,"T - NEW TRACK"
70 PRINT@296,"F - TRACK FAST"
75 PRINT@328,"N - TRACK NORMAL"
80 PRINT@360,"C - CLEAR MAP"
85 PRINT@392,"R - RE-RUN PROG."
90 IFINKEY$<"T"THEN90
100 CLS:PRINT"TRACK FROM:"
110 INPUT"1. LAUNCH 2. IN ORBI
T ";C:PRINT:ONC GOTO140,170
130 GOTO100
140 PRINT"LAUNCH FROM CAPE CANA
VERAL":KI=28.5:LI=-80.7:NS$="S"
160 GOTO230
170 PRINT"ENTER INITIAL DATA"
180 PRINT"INIT. LAT. (DEG,MIN,N
/S)":INPUT" ";KD,KM,NS$
190 PRINT"INIT. LNG. (DEG,MIN,E
/W)":INPUT" ";LD,LM,EW$
200 KI=KD+KM/60:IF NS$="S"THEN K
I=-KI
210 LI=LD+LM/60:IF EW$="W"THEN L
I=-LI
220 INPUT"INIT. MOVEMENT (N/S):
";NS$
230 INPUT"ORBIT ALTITUDE (KM):"
;AL
240 INPUT"ORBIT INCLIN. (DEG):"
;IN
250 T=KI/IN
260 IFT=1THENAS=90:GOTO290
270 IFT=-1THENAS=-90:GOTO290
280 AS=ATN(T/SQR(-T*T+1))*180/PI

290 IFNS$="N"THENLO=LI-AS
300 IFNS$="S"THENLO=LI+AS-180
310 LL=LO:GOSUB800:LO=LL
320 A=AL:GOSUB830

```

```

330 IFC=1THENVE=2.105*COS(IN*PI/
180):VS=VE
340 PRINT"INIT. CLOCK (D,H,M)"
350 INPUT" ";D,H,M:PRINT
360 CL=1440*D+60*H+M
370 K=KI:L=LI:LS=LI:T=0
380 INPUT" HIT <ENTER> TO START
TRACK";W:SCREEN1,1:GOTO900
400 IFPOINT(XP,YP)=0THENPSET(XP
,YP,5)ELSEPSET(XP,YP,0)
410 M=ABS(CL)
420 IFCL<0THENM=-1
430 D=INT(M/1440):M=M-D*1440
440 H=INT(M/60):M=M-H*60
450 DRAW"BM136,186;XB$;"
460 DRAW"C0;BM136,186;":N=M:GOSU
B1100
470 IFM=0ORM=59THENDRAW"BM96,186
;XB$;"
480 DRAW"C0;BM96,186;":N=H:GOSUB
1100
490 IF(H=0ANDM=0)OR(H=23ANDM=59)
THENDRAW"BM56,186;XB$;"
500 DRAW"C0;BM56,186;":N=D:GOSUB
1100
510 IFC=2ORT>120THEN550
520 IFT=9THEN A=150:GOSUB830
530 IFT=53THENA=(AL+185)/2:GOSUB
830
540 IFT=INT(53+PS/2)THENA=AL:GOS
UB830
550 IFF=1THENIFCL<0THEN630ELSE58
0
560 IFCL<0THENFORS=59TOLSTEP-1:G
OSUB700:NEXT:GOTO620
570 FORS=1TO59:GOSUB700:NEXT
580 T=T+1
590 L=L+VE:LL=L:GOSUB800:L=LL
600 LS=LS+VS:LL=LS:GOSUB800:LS=L
L
610 K=IN*SIN((LS-LO)*PI/180)
620 DRAW"BM176,186;XB$;"
630 KS=INKEY$:IFKS="N"THENF=0ELS
EIFKS="C"THENGOSUB1200ELSEIFKS="
T"THENDRAW"BM56,186;XB$;BM96,186
;XB$;":GOTO100ELSEIFKS="R"THEN30
0
640 CL=CL+1:GOTO900
700 REM TIMER
710 DRAW"BM176,186;XB$;"
720 DRAW"C0;BM176,186;"
730 N=S:GOSUB1100
740 IFS<10THEN FORI=1TO456:NEXT
750 IFS>9 THEN FORI=1TO418:NEXT
760 IFINKEY$="F"THENF=1:IFCL0THE
N620ELSE580
770 RETURN
800 IFL<-180THENLL=LL+360:GOTO8
00
810 IFL>180THENLL=LL-360:GOTO81
0
820 RETURN
830 PS=1436*((A+6371)/42156)^(3/
2):PE=1436*PS/(1436-PS)
840 VS=360/PS:VE=360/PE
850 RETURN
900 IFK<-54THEN410
910 IFK>-50THEN930
920 YP=188-(K+60)*8/5:GOTO1050
930 IFK>-20THEN950
940 YP=172-(K+50)*6/5:GOTO1050
950 IFK>20THEN970
960 YP=136-(K+20):GOTO1050
970 IFK>50THEN990
980 YP=96-(K-20)*6/5:GOTO1050
990 IFK>60THEN1010

```

```

1000 YP=60-(K-50)*8/5:GOTO1050
1010 IFK>70THEN1030
1020 YP=44-(K-60)*2:GOTO1050
1030 IFK>80THEN410
1040 YP=24-(K-70)*12/5
1050 YP=INT(YP+.5)
1060 IFL>90THENXP=8+(L-90)*2/3 E
LSEXP=188+L*2/3
1070 XP=INT(XP+.5)
1080 GOTO400
1100 NS=STR$(N)
1110 FORI=1TOLN(NS)
1120 KS=MID$(NS,I,1)
1140 IFKS=" "THENDRAW"XBK$;":GOT
O1160
1150 N=VAL(KS):DRAW"XN$(N);"
1160 NEXT:RETURN
1200 COLOR0,5:PCLS
1210 DRAW"BM82,20;M78,25;M80,31;
M76,31;M76,34;M80,34;M80,36;M78,
40;M80,45;M82,46;M80,49;M76,52;M
80,51;M84,47"
1220 DRAW"BM88,41;M100,45;M108,60
;M108,75;M112,90;M112,80;M118,93
;M118,96;M126,99;M132,105;M136,1
06;M132,103;M130,99"
1230 DRAW"ML30,96;M126,96;M122,9
2;M122,87;M124,84;M132,84;M134,8
9;M134,83;M136,77;M136,73;M144,6
5;M146,65;M146,67"
1240 DRAW"ML48,64;M144,64;M140,5
9;M148,59;M150,56;M142,44;M142,4
6;M138,46;M138,41;M134,40;M132,5
9;M130,55;M124,48"
1250 DRAW"ML24,40;M132,31;M132,2
6;M130,28;M124,20;M124,28;M114,2
5;M108,27;M102,27;M98,24;M82,20"
1260 PAINT(84,22),6,6
1270 DRAW"BM136,106;M136,112;M13
4,115;M132,120;M136,131;M140,134
;M140,139;M136,155;M136,170;M138
,175;M144,177;M144,176;M142,173;
M142,168;M144,159;M148,158"
1280 DRAW"ML56,144;M156,141;M158
,138;M160,138;M162,134;M164,125;
M166,123;M166,121;M158,116;M158,
112;M154,111;M150,107;M146,107;M
142,105;M136,106;BM148,173;M150,
174"
1290 PAINT(142,106),6,6
1300 DRAW"BM132,93;M134,93;M140,
95;M136,95;M132,93"
1310 DRAW"BM104,21;M106,16;M112,
17;M114,16;M114,20;M118,21;M116,
23;M110,23;M104,21":PAINT(108,18
),6,6
1320 DRAW"BM128,12;M134,12;M142,
22;M142,27;M144,31;M142,41;M136,3
7;M134,37;M134,35;M138,35;M138,2
6;M134,23;M130,23;M128,17;M128,1
2":PAINT(130,13),6,6
1330 DRAW"BM150,62;M152,56;M152,
58;M154,58;M154,62;M150,62":PAIN
T(152,61),6,6
1340 DRAW"BM144,0;M144,2;M140,4;
M142,12;M148,12;M152,23;M152,32;
M156,42;M158,43;M162,34;M172,26;
M174,0":PAINT(146,0),6,6
1350 DRAW"BM172,34;M178,32;M180,
34;M176,37;M174,37;M172,36;M172,
34":PAINT(176,35),6,6
1360 DRAW"BM78,94;M82,96;M82,97;
M78,95;M78,94"
1370 DRAW"BM8,11;M14,10;M18,7;M2
2,9;M22,14;M34,15;M36,23;M40,22;

```



# MusiWriter

## A "Word" Processor for Music!

At last! Here is a music editor that allows you to set out music without those frustrating manuscript problems.

♪ You can generate as many copies as you wish as well as edit music whenever you want. No More Faded Photo Copies!

♪ MusiWriter easily edits or transcribes music systems. You see the music on the screen as it will appear on paper. Edit any stave individually with full cursor control, scrolling forwards or backwards, up or down a stave.

♪ MusiWriter handles systems up to ten staves and fifteen keys. It will also compose time signatures and a wide range of notes, rests and bar notes.

### It's a masterpiece!

#### SYSTEM REQUIREMENTS:

Color Computer with 32K RAM, disk drive, and graphic printer (such as Radio Shack's DMP 120).

#### PRINTERS SUPPORTED:

Group 1—Radio Shack DMP 110/DMP 120/DMP 200/etc.

Group 2—Epson/Gemini/Spirit/Smith Corona/etc.

#### VER PRINTERS PRICE

1.0 Group 1 ..... \$50.00  
1.1 Group 2 ..... 50.00  
1.2 Group 1 & 2 ..... 60.00

Add \$5.00 for handling and first class postage. Price in U.S. currency.

Circle Reader Service card #342

Send check or money order to,

**TESSERACT  
SOFTWARE/SYSTEMS**  
5350 Montclair Ave.,  
Montreal, Quebec Canada H4V 2L1

M42,18;M54,20;M54,23;M64,23;M72,31;M70,34;M66,31;M64,34;M66,37;M60,43"

1380 DRAW"M58,43;M54,45;M54,51;M52,55;M50,51;M50,49;M52,44;M52,42;M50,42;M48,45;M40,44;M36,52;M40,53;M40,59;M36,66;M34,66;M32,72;M34,77;M32,78;M30,72;M26,73"

1390 DRAW"M28,82;M28,88;M22,95;M18,95;M18,97;M20,102;M20,105;M18,106;M14,104;M14,108;M16,115;M14,113;M10,99;M8,101;M8,11"

1400 PAINT(18,8),6,6;PAINT(52,50),6,6

1410 DRAW"BM36,80;M36,78;M40,72;M42,65;M44,66;M42,73;M36,80":PAINT(40,74),6,6

1420 DRAW"BM28,92;M28,94;BM30,91;M30,93"

1430 DRAW"BM30,98;M32,98;M32,100;M30,101;M30,103;M28,102;M28,100;M3098":PAINT(30,99),6,6;DRAW"BM32,103;M34,104;M30,106;BM30,108;M34,106;M34,110;M32,110;M32,108;M30,108"

1440 DRAW"BM24,109;M26,110;M24,113;M26,114;M24,119;M20,118;M20,114;M24,109":PAINT(22,115),6,6;DRAW"BM30,116;M28,116;M26,119;M28,119;M28,116"

1450 DRAW"BM8,112;M12,115;M16,119;M22,121;M14,120;M8,113;M8,112":PAINT(12,116),6,6

1460 DRAW"BM34,116;M38,117;M44,121;M46,125;M42,123;M38,123;M36,119;M34,118;M34,116":PAINT(40,120),6,6

1470 DRAW"BM42,126;M44,135;M52,146;M46,158;M40,158;M34,150;M22,153;M18,139;M32,128;M36,128;M36,131;M40,134;M42,126":PAINT(34,129),6,6

1480 DRAW"BM62,153;M66,157;M60,165;M56,163;M62,157;M62,153":PAINT(60,163),6,6

1490 DRAW"BM246,11;M240,15;M234,15;M230,24;M226,23;M216,30;M206,24;M192,39;M192,45;M194,46;M196,46;M196,51;M198,51;M200,44;M200,40;M204,32;M206,33;M204,38;M206,43;M202,53"

1500 DRAW"M194,53;M192,48;M192,53;M184,61;M186,63;M186,67;M180,67;M180,75;M184,77;M186,75;M190,69;M194,68;M198,73;M196,74;M198,74;M200,73;M198,68;M200,68;M204,74;M210,63"

1510 DRAW"M212,64;M216,63;M216,66;M220,69;M220,71;M216,71;M214,70;M212,70;M208,71;M208,76;M216,76;M214,83"

1520 DRAW"M208,83;M202,81;M200,82;M194,79;M194,78;M190,78;M186,79;M184,79;M184,77;M186,75;M190,80;M174,95;M174,103;M182,112;M190,111;M194,112"

1530 DRAW"M194,117;M196,120;M198,126;M196,131;M196,135;M198,139;M200,152;M206,151;M212,141;M212,136;M216,130;M216,120;M222,106;M216,107"

1540 DRAW"M210,86;M214,86;M220,103;M226,101;M228,96;M226,94;M224,94;M222,89;M224,89;M230,93;M232,93;M236,95;M240,106;M242,104;M242,100;M246,94;M246,11"

1550 DRAW"BM224,75;M224,71;M222,66;M222,64;M226,63;M228,65;M226,66;M226,68;M228,70;M228,75;M224,75"

1560 PAINT(244,14),6,6

1570 DRAW"BM218,141;M218,133;M222,128;M224,131;M222,141;M218,141":PAINT(220,134),6,6

1580 DRAW"BM184,45;M186,50;M186,56;M182,56;M182,53;M184,52;M184,50;M182,47;M184,45;M184,48":PAINT(184,55),6,6;DRAW"BM178,54;M178,50;M180,50;M180,53;M178,54"

1590 DRAW"BM0,116;M254,116;BM250,23;M254,23;BM250,43;M254,43;BM250,59;M254,59;BM250,71;M254,71;BM250,83;M254,83;BM250,95;M254,95"

1600 DRAW"BM250,105;M254,105;BM250,125;M254,125;BM250,135;M254,135;BM250,147;M254,147;BM250,159;M254,159;BM250,171;M254,171;BM250,187;M254,187"

1610 DRAW"BM8,188;M8,192;BM28,188;M28,192;BM48,188;M48,192;BM68,188;M68,192;BM88,188;M88,192;BM108,188;M108,192;BM128,188;M128,192"

1620 DRAW"BM148,188;M148,192;BM168,188;M168,192;BM188,188;M188,192;BM208,188;M208,192;BM228,188;M228,192;BM247,188;M247,192"

1630 DRAW"BM8,186;XT\$;XI\$;XM\$;XE\$;XC\$;BM84,186;XD\$;BM124,186;XH\$;BM164,186;XM\$;BM203,186;XS\$;"

1640 RETURN

1700 D\$="BM+1,0U6R2F2D2G2L2BR7"

1710 E\$="BM+5,0L4U6R4BD3BL2L2BD3BR7"

1720 H\$="BM+1,0U6BR4D6BL4BU3R4BR3BD3"

1730 I\$="BM+5,-6L4R2D6L2R4BR3"

1740 M\$="BM+1,0U6R1F2D1U1E2R1D6BR3"

1750 S\$="BM+1,-1F1R2E1H4E1R2F1BD5BR3"

1760 T\$="BM+3,0U6L3R6BR2BD6"

1770 BK\$="BM+1,0BR7"

1780 N\$(1)="BM+3,-6D6BR5"

1790 N\$(2)="BM+1,-5E1R2F1D1G4R4BR3"

1800 N\$(3)="BM+1,-1F1R2E1U1H1L1R1E1U1H1L2G1BD5BR7"

1810 N\$(4)="BM+1,-6D3R4L1U3D6BR4"

1820 N\$(5)="BM+1,-1F1R2E1U2H1L3U2R4BR3BD6"

1830 N\$(6)="BM+1,-3R3F1D1G1L2H1U4E1R2F1BD5BR3"

1840 N\$(7)="BM+1,-5U1R4D2G3D1BR6"

1850 N\$(8)="BM+2,0H1U1E1R2E1U1H1L2G1D1F1R2F1D1G1L2BR6"

1860 N\$(9)="BM+1,-1F1R2E1U4H1L2G1D1F1R3BD3BR3"

1870 N\$(0)="BM+2,0H1U4E1R2F1D4G1L2BR6"

188 C\$="BM+3,-4U1R1D1L1BD2D1R1U1L1BD2BR5"

1890 B\$="C5;U6R24D1L24D1R24D1L24D1R24D1L24D1R26"

1900 RETURN



# NEW DISK DRIVES

STARTING AT

## \$129.00

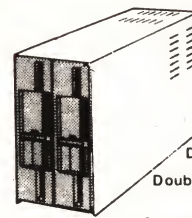
**WITH CASE &  
POWER SUPPLY**  
**\$169.95**



TANDON MPI TEAC

Speed 6 ms tk to tk and up  
Capacity 250k unformatted  
Tracks 40  
Warranty **now 1 YEAR**

New Low Price!



40 Tks 6Ms  
Double Sided  
Double Density

40 or 80 Tracks

1/2 Hght. Teac/Panasonic



We carry only the finest quality disk drives \*no seconds\* no surplus

### **SATISFACTION GUARANTEED!!**

ALL DRIVES FULLY TESTED & WARRANTED

Complete Disk Drive with Power Supply & Case ..... Teac ..... \$169.95  
Two Drives in Dual Case & Power Supply ..... Teac ..... \$279.95  
1/2 ht double sided double density Disk Drives (Panasonic/Teac) <sup>Tracks 40 only</sup> **\$159.00**  
1/2 ht double sided double density Disk Drive with ps & case ..... <sup>Tracks 40</sup> \$199.95



How to use your new drive system on audio cassette

Single ps & case \$44.95 Dual 1/2 ht ps & case ..... \$54.95 Dual ps & case ... **Call**

Color Computer Controller (J&M)



**\$129.95**

### **DRIVE 0 FOR RADIO SHACK COLOR COMPUTER**

TANDON, MPI OR TEAC DRIVE (SINGLE SIDED 40 TRACKS SPEED 5 MS TRK TO TRK & UP)  
POWER SUPPLY and CASE, TWO DRIVE CABLE WITH ALL GOLD CONNECTORS

J&M CONTROLLER, MANUAL and DOCUMENTATION ..... ~~\$329.95~~ ..... **\$ SALE!**

BUY THE BEST  
FOR LESS!  
CALL!

### **DRIVE 0 FOR RADIO SHACK COLOR COMPUTER**

PANASONIC 1/2 HEIGHT DOUBLE SIDED DOUBLE DENSITY DRIVE 500K unformatted  
POWER SUPPLY and CASE, 2 DRIVE CABLE WITH ALL GOLD CONNECTORS

J&M CONTROLLER, MANUAL and DOCUMENTATION ..... ~~\$399.95~~ ..... **Super!! SALE!**

TAKE ADDED SAVINGS ON TWO DRIVE SYSTEMS

DISKETTES with free library case ..... **\$17.95**

Unadvertised Specials ..... **\$Call**

Drives cleaned, aligned & tested ..... **\$29.95**



10 Diskettes  
CONTROL DATA

TECHNICAL STAFF ON DUTY, PLEASE CALL FOR ASSISTANCE.



**CALL US TODAY!!  
ORDER TOLL FREE**

**(617) 234-7047  
1-800-635-0300**

\* DEALER INQUIRIES INVITED.  
**(617) 234-7047**



## TRUE DATA PRODUCTS



195 Linwood Street, P.O. Box 546

Linwood, Massachusetts 01525

(617) 234-7047

HOURS MON-SAT 9-6 (EST)

We welcome

- Visa / Master Charge  
- Checks (allow 2 weeks for clearing)
- C.O.D. Add \$2.00

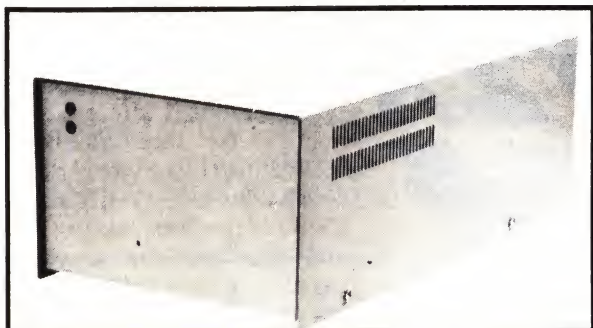
Circle Reader Service card #93



# New Hard Drives

----- COMPLETE SYSTEM ----- JUST PLUG IN -----

**Call For  
BEST PRICE**



**Warranty - One Full Year**

5 to 20 Megabyte, ready to run on the TRS  
80 Model I/III/IV/4P, color computer,

**64K UPGRADES \$39<sup>95</sup>**

## stair

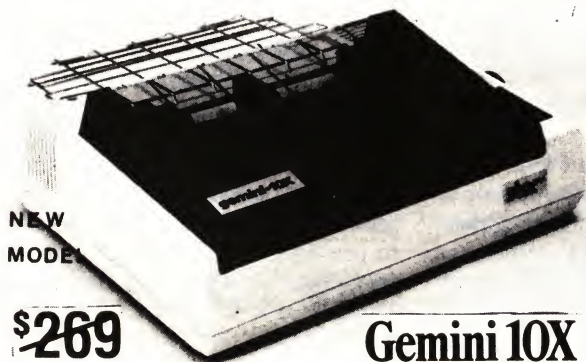
**PRINTERS**

- 100 - 120 - 160 CPS
- Bidirectional Logic Seeking
- Friction and Tractor
- 9X9 Dot Matrix
- True Decenders
- High Res-Bit Image Block Graphics

**PRINTER CABLES AND  
INTERFACES AVAILABLE**  
Call for current pricing

- Super Script-Subscript
- Underlining
- Backspacing Doublestrike
- 5, 6, 8 1/2, 10, 12 and 17 Pitch
- Programmable Line Spacing
- SIX (6) MONTH WARRANTY

**GEMINI 10X** (9 Inch Carriage, 120cps) Friction and Tractor.....\$CALL  
**GEMINI 15X** (15 Inch Carriage, 120cps) Friction and Tractor....\$CALL  
**DELTA 10** (10 Inch Carriage, 160cps) Friction and Tractor.....\$CALL  
**POWER TYPE** Letter quality



**NEW  
MODEL**

**\$269**

**Gemini 10X**

## NEW QUALITY VIDEO MONITORS

Starting at **\$79.<sup>95</sup>**

**MONOCHROME  
COLOR MONITORS**



### VIDEO DRIVER

ENABLES YOUR COCO TO OPERATE WITH A  
VIDEO MONITOR INSTEAD OF A TELEVISION!

### SCREEN DUMP PROGRAM

The best screen dump program for the Epson & Gemini  
printers ever!! Have the option of standard images  
or reverse w/regular or double sized pictures **\$19<sup>95</sup>**

### SP-3 INTERFACE for Color Computer

- 300-19,200 BAUD rates
- External to printer — No AC Plugs
- Built in modem/printer switch—no need for  
Y-cables or plugging/unplugging cables

**Only:**

**\$59.95**



### COMPLETE SYSTEM

**ONLY**

**~~319<sup>95</sup>~~**

**NEW  
LOW  
PRICE**

**now  
with  
screen  
dump**

*Nothing more to buy!*

Dealer inquiries invited



**TRUE DATA PRODUCTS**

195 Linwood Street, P.O. Box 546  
Linwood, Massachusetts 01525



**CALL US TODAY!!  
ORDER TOLL FREE**

**(617)234-7047  
1-800-635-0300**



# IMPROVE YOUR TELEWRITER 64

Graphic by Jon McGuire

*Make one of the best  
CoCo word processors  
even better.*

As a writer, I have used many word processors and feel that Cognitec's Telewriter-64 is one of the best. It offers many features; it is easy to learn and is well documented; and you can modify it to suit your own needs because three Basic programs load the initial setup, the ASCII disk input/output (I/O), and the binary disk input/output.

First I decided to use uppercase letters on the menu screens instead of the standard reverse capitals representing lowercase. Two of the four menus are machine-language driven and are not easy to modify, but the two that bothered me most are in Basic and can be fixed.

I also didn't like manually switching from lowercase to uppercase mode (shift/0) whenever I used a disk I/O menu, so I provided a fix that automatically switches to lowercase before you type and switches to uppercase before you use a disk menu.

My most serious complaint with Telewriter-64 is the difficulty of switching between the ASCII disk I/O menu and the binary disk I/O menu. First you must exit to Basic and then type "RUN" followed by the disk I/O filespec to get to the other disk menu. This is especially inconvenient if you use a spelling checker often but want to save most of your files in binary.

The Telewriter-64 manual suggests

that you rename the ASCII menu, but that still leaves you with the same problem. I wanted a much easier way of switching to the other menu, so I came up with a routine that lets me do so with a single keystroke.

My last modification makes the default values for the format menu reflect what I need. Telewriter-64 starts out with a 50-character line length and a 66-line page length, both the justify and one-line options turned off, zero set as the left margin, the XMIT value set at 88, and the line spacing set at one. I wanted every document I created to have the same parameters, so I wrote a patch that lets Telewriter-64 initialize with the values I want.

As a word of caution before you begin making these changes, you will be altering three files, so make a full backup of Telewriter-64. Work with the backup and set the unchanged disk aside. If you work with the original and make a mistake, you might not be able to correct it.

## U/BAS

U/BAS is the initial Basic loader that starts Telewriter-64 each time you use it. It is about 1,736 bytes long and consists primarily of PEEK and POKE commands. If you just plug in the necessary changes, you'll get an out-of-memory (OM) error when you use the program. There are only a finite number of bytes allotted to each program, so you have to make room for the intended changes.

Load U/BAS, but do not run it. Type in or change only those lines that appear in Program Listing 1. Do *not* type in the REM statements or the remarks following them; they are for your information

only. If you have other changes to make to the program and need more memory, you can add bytes by line packing (eliminating unnecessary spaces and combining commands from several lines into one line).

You can move the commands in lines 20, 27, 89, 96, 197, and 350 to the preceding line if you want to, because there are no GOTO, GOSUB, or THEN branches to these lines. This will free 3 bytes per change, giving a total gain of 18 bytes. Removing all unnecessary spaces throughout U/BAS will give you about 27 extra bytes. I deleted the Telewriter-64 name and the copyright message from the original line 325. If you want to leave it in, you *must* recover bytes elsewhere.

Save the changed file twice, once under the filespec U/BAS and once under another name of your choice; if you come up with errors, you can reload the second file to make changes. If U/BAS runs properly, you can kill the second file.

The modification puts you into lowercase mode, turns on the justify and one-page functions (pause after printing each page), sets a baud rate of 600, and sets a left margin of 10. You might want to use the POKE addresses and values from Table 1 to add something to this. Line 326 is a good place to add additional POKES.

## System Requirements

16K RAM  
Disk Drive  
Telewriter-64 (disk version)



# The JBM Group brings you OS-9\* SOFTWARE SOLUTIONS!

## NuBASE: The uncomplicated data base

**\$150**

At last- a data base manager so versatile that you can use it to do what *you* want with your data. It's not complicated or overbearing; in fact, it's so easy to use that you'll be up and running in minutes.

Simple, user-specified masks insure data accuracy. Data integrity is assured through the use of highly crash-resistant software. See what you're doing through the interactive generation of screens, files and reports.

NuBASE is as affordable as it is complete. There's nothing else to buy; one price brings you the comprehensive package, including a ready-to-use mailing list application to get your NuBASE working for you on day one.

## CAL

**\$69**

*Appointment calendar program to help keep your important dates straight.*

- Simple command structure
- Lists appointments by day, week or month
- Revises dates, times, relevant information on existing schedule entries
- Default calendar file for each user
- Unlimited alternate calendar files
- System-wide master file for scheduling common appointments

## HELP

**\$69**

*User-expandable generic help facility*

- Includes data for online help with OS-9 utilities
- Fast, efficient disk storage
- Three-level nesting • Wild Card searching
- Automatic display of available help
- Steps the user until he finds the answer

## GENUS

**\$49**

*A new stand-alone sort for OS-9 that keeps asking for more data!*

- Easy-to-understand prompts ask you for all information necessary to sort your data files
- Allows sorting in ascending or descending order
- Allows unlimited number of sort keys of different types
- Saves both disk and memory space by summing numeric fields as it sorts

## THE MESSAGE

**\$89**

*The only interoffice memo system currently available for OS-9 Level II users.*

- Eliminates lost and confused interoffice memos
- Interfaces easily with your existing word processor or editor; no new commands needed
- Allows hardcopy printout, verification of received messages, immediate reply to sender
- Transmit new messages OR existing files to single user, or 'broadcast' to all users
- Preview Line indicates number, size and topic of stored messages
- Saves time, money, energy; cuts down on 'office aggravation'

## DISK BACKUP

**\$99**

*Controlled hard disk-to-floppy backup with restore capability*

- Handles files larger than output media
- Single file, Wild Card search, current directory only, current-and-all-subdirectories
- Date and time for incremental backup
- Operator-friendly, handles error conditions smoothly
- Use to create optimized disks

For more information or to place an order, contact:

Dept. HC 17

**The JBM Group, Inc.**

Continental Business Center  
Front & Ford Streets  
Bridgeport, PA 19405



TWX: 510-660-3999

**215-275-1777**



\*OS-9 is a registered trademark of Microware Corporation

PA res. add 6% sales tax.  
US orders, add \$5.00 postage and handling.



## S/XXX

S/XXX handles all binary disk functions. Follow the same procedures as you did with U/BAS, but use Program Listing 2 and the S/XXX binary I/O program from Telewriter-64. After you make the changes from Listing 2, you will have 21 more bytes than you started with. If you still need more, do more line packing and move the commands in lines 49, 135, 280, 380, 620, 655, and 931 to the preceeding lines. This will give you another 21 bytes. Deleting spaces from the program lines will give you another 60 bytes (a total gain of 102 bytes). These changes result in a better looking menu for binary I/O, automatic uppercase mode when you use the menu, automatic lowercase mode when you leave it to go back to your typing, and easy "one key" switching to and from the ASCII I/O menu.

## S/ASC

The two disk I/O programs are similar, but by no means identical. Load S/ASC and make the changes found in Program Listing 3. As with the binary disk I/O program, you get more free bytes after the modifications. If you need more, move the commands in lines 49, 82, 110, 564, 565, 572, 580, 620, 655, 670, 720, 735-750, 770 and 780, 800, 825, and 931 to preceding lines to gain 60 extra bytes. As with S/XXX, you can recover even more bytes by removing spaces from program lines. I doubt that you will need it with this program unless you get carried away with additional changes.

Listing 3 will do for the ASCII disk program what Listing 2 did for the binary program. The only difference you will see is that the prompt to return to the binary disk program will ask for an M to switch menus and a B to return to Basic.

## The End

The above changes are minor, but they make a great program even better. They also show you how to make other changes to Telewriter-64 to suit your particular needs. ■

*Address correspondence to Mick McGuire, 2234 George Wythe Road, Orange Park, FL 32073.*

Table 1. POKE Locations, Values, Functions, and Remarks

### POKE LOCATIONS, VALUES, FUNCTIONS AND REMARKS

MEMORY LOCATION	VALUE	FUNCTION	REMARKS
150	87	SETS BAUD RATE	WAS 88, SHOULD BE 87
180	0 OR 1	AUTO PAGE NUMBERS	0 IS OFF, 1 IS ON
198	n	SET UPPER MARGIN	YOUR CHOICE
210	n	# LINES PER PAGE	SEE LINE 326 OF U/BAS PROGRAM
213	1 OR MORE	LINE SPACING	SEE LINE 326 OF U/BAS PROGRAM
243	n	SET BOTTOM MARGIN	YOUR CHOICE
253	n	LINE WIDTH	NORMALLY 50, SEE LINE 326 OF U/BAS PROGRAM
255	n	SET LEFT MARGIN	YOUR CHOICE
282	0 OR 255	UPPER/LOWERCASE SWITCH	SAME AS SHIFT/0 0 IS LOWERCASE, 255 IS UPPERCASE
258	n	WHERE	WHERE DO YOU WANT THE PAGE NUMBER?
1006	0 OR 1	ONE PAGE PRINTER PAUSE	0 IS OFF, 1 IS ON
1018	0 OR 1	JUSTIFY ON/OFF	0 IS OFF,

Program Listing 1. Changes to U/BAS

```
2 SW=0:POKE1018,1:POKE150,87
  REM 1018,1 TURNS JUSTIFY ON / 150,87 SETS 600 BAUD RATE

95 NM=PEEK(YY)*256+PEEK(YY+1):RETURN
  REM LINE IS THE SAME EXCEPT 'RETURN' ADDED FROM LINE 96

96 REM DELETE THIS LINE

325 POKE220,0
  REM 220,0 TURNS QUEUE OFF / REST OF LINE DELETED TO MAKE ROOM

326 POKE253,65:POKE210,55:POKE213,1:POKE282,0:POKE1006,1:POKE255,10
  REM 253,65 SETS LINE LENGTH / 210,55 SETS LINES PER PAGE
  REM 213,1 SETS LINE SPACING / 282,0 SETS LOWER CASE MODE
  REM 1006,1 TURNS ON ONE PAGE / 255,10 SETS LEFT MARGIN TO 10
  REM ADD ANY OTHER POKES YOU NEED TO THIS LINE

345 YY=196:GOSUB95:POKENM,92:RETURN
  REM LINE UNCHANGED EXCEPT 'RETURN' FROM 350 ADDED

350 REM DELETE THIS LINE
```



*Program Listing 2. Changes to S/XXX*

```

2 CLEAR670,7790:MX=1:POKE282,255
  REM LINE UNCHANGED EXCEPT FOR POKE282,255 FOR UPPER CASE MODE

10 PRINT,"BINARY",,"EDIT",,"SAVE",,"% SAVE",,"READ",,"APPEND"
  ,,"NAME CH",,"KILL",,"FILES",,"BASIC OR ASC",,"PRT DIR"
  REM THIS CLEANS UP MENU AND REPLACES LINES 13, 14 AND 20

13 REM DELETE THIS LINE

14 REM DELETE THIS LINE

20 REM DELETE THIS LINE

25 PRINT@451,"FILE: ";C$:PRINT@480,"DEFAULT: ";PEEK(&H95A);
  REM LINE UNCHANGED EXCEPT FOR UPPERCASE 'DEFAULT'

46 IFA$="R"THEN100ELSEIFA$="B"THENPOKE&H183,198:POKE388,183
  :INPUT"ASC OR BASIC";Z$:IFZ$="A"THENRUN"S/ASC"ELSEEND
  REM CHANGES REMOVED SPACES AND PROVIDE DISK MENU SWITCHING

250 IFL>8THENPRINT@33,"TOO BIG";:GOTO350
  REM WORD 'NAME' REMOVED TO RECOVER BYTE SPACE

340 PRINT@33,"not found";
  REM ONLY CHANGE WAS TO REMOVE 'FILE'

510 POKE104,255:POKE105,255:POKE&H183,198:POKE388,183
  :POKE282,0:EXECDK
  REM LINE UNCHANGED EXCEPT FOR POKE282,0 FOR LOWER CASE MODE

```

*Program Listing 3. Changes to S/ASC*

```

2 CLEAR800,7790:MX=1:POKE282,255
  REM 282,255 ADDED TO SET UPPER CASE MODE

13 PRINT,"ASC",,"EDIT",,"SAVE",,"% SAVE",,"READ",,"APPEND"
  ,,"NAME CH",,"KILL",,"FILES",,"BASIC OR BIN",,"PRT DIR"
  REM CLEANS UP MENU AND REPLACES LINES 14, 15, 16 AND 20

14 REM DELETE

15 REM DELETE

16 REM DELETE

20 REM DELETE

27 PRINT@480,"DEFAULT: ";PEEK(&H95A);
  REM 'DEFAULT' CHANGED TO UPPER CASE TO CLEAN UP MENU

46 IFA$="R"THEN100ELSEIFA$="B"THENPOKE&H18E,57:INPUT"M-DISK OR
  BASIC";Z$:IFZ$="M"THENRUN"S/XXX"ELSEEND
  REM SPACES REMOVED AND ALLOWS CHOICE OF BASIC OR BINARY (M) MENU

510 POKE104,255:POKE105,255:POKE282,0:EXECDK
  REM 282,0 SWITCHES TO LOWER CASE MODE

```

Circle Reader Service card #131

## CONVERT YOUR ANALOG WORLD TO DIGITAL

ANALOG TO DIGITAL  
CONVERTERS FOR COLOR  
1 OR 2 COMPUTERS

### - CCAD-B -

#### FEATURES:

- MENU DRIVEN SOFTWARE
- 12 BIT RESOLUTION
- 16 INPUT CHANNELS
- ON-BOARD USER AMPLIFIERS
- 3 TTL ALARM LINES
- DISK OR TAPE SOFTWARE INCLUDED

#### ORDER:

CCAD-B & DISKETTE	\$199.00
CCAD-B & TAPE	\$190.00

### - AD-8 -

#### FEATURES:

- 8 BIT RESOLUTION
- 8 INPUT CHANNELS
- OPTIONAL MENU DRIVEN SOFTWARE

#### ORDER:

AD-8 HARDWARE	\$69.95
AD-8 TAPE	7.95
AD-8 DISKETTE	9.95

**THINC**   
**TECHNICAL HARDWARE, INC.**  
 P.O. BOX 3609  
 FULLERTON, CA 92634

## ATTENTION

### Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that CW/Peterborough provides.

Provide your audience with the magazine they need and make money at the same time. For details on selling **Microcomputing**, **80 MICRO**, **inCider**, **HOT CoCo**, **RUN** contact:

**SANDRA JOSEPH**  
**WORLD WIDE MEDIA**  
**386 PARK AVE., SOUTH**  
**NEW YORK, NY 10016**  
**PHONE (212) 686-1520**  
**TELEX-620430**



# Electronic Learning

*Achieving a balance between traditional education  
and electronic learning is the challenge of our future.*





Imagine a classroom without a teacher or classmates. Impossible, you say? Don't bet on it! The computer age has brought some revolutionary educational concepts into reality. Now a student can simply use a CoCo, a telephone, and a modem to acquire all types of educational information.

The computer is rapidly changing information retrieval. Traditionally, students used a set of encyclopedias in the home to help with school assignments. School libraries, in addition to walls lined with books, now have computer terminals. While books and encyclopedias still remain an integral part of a school research assignment, using a computer has emerged as a new alternative to the trek to a library.

### Electronic Campus

Education by computer isn't a "wild" idea. TeleLearning Electronic University, a university where you can earn college credit even though you never physically attend a class, is already available. To access TeleLearning, students purchase a "knowledge package" that consists of a course catalog and a computer program that links a computer with the university's network of teachers. After you receive the knowledge package, you are ready to sign up for the courses offered by TeleLearning.

One interesting feature of TeleLearning is that it is interactive. If arrangements are made in advance, a student can interrupt the transmission of a lecture to type questions to the teacher who, in turn, will immediately type a response. To find out more about TeleLearning, write to the company at 505 Beach, San Francisco, CA 94133.

### Encyclopedias On Line

Consider the plight of the student who comes home late from school after basketball practice and has a research report to write. The student doesn't have any encyclopedias at home, and the local library is closed. Fortunately, through the magic of electronic learning, a remedy exists. CompuServe, a large database in Columbus, OH, has Academic American Encyclopedia (AAE) on line. To access AAE, you simply sign on to the CompuServe network and type GO AAE. Once you're there, a menu appears giving you instructions.

Note, however, that there is a premium charge for using Academic American Encyclopedia, and there are no

graphics so pictures and maps are not available. In addition to AAE, CompuServe offers a plethora of menu items that contain educational information. From business news to children's trivia, CompuServe offers educational activities for both children and adults. For more information, write CompuServe at 5000 Arlington Centre Blvd., P.O. Box 20212, Columbus, OH 43220.

TeleLearning and CompuServe are only two examples of databases that you can use for electronic learning. Other well-known databases include NewsNet and The Source.

### Future Implications

What does electronic education or learning mean? Are there any implications for learners? No doubt electronic learning will change some traditional educational concepts. If students can gain university credit at home, the need to commute to the university every day can be eliminated.

Perhaps students who are ill and unable to attend school will be able to call the school to obtain their assignments. Better yet, if they cannot attend school on a given day, perhaps they'll be able to access tutorial information to help them with the day's assignments. Certainly, this would be a profitable way to use a home computer system.

Looking back to claims made by educators in the past that educational television would revolutionize learning makes one view electronic learning with a bit of skepticism. While there are some distinct differences between the two, considerable research needs to be conducted to validate the enthusiastic claims made by educational computer proponents.

One, and perhaps the most distinctive, difference is that students who use electronic learning must be able to read. Those who are good readers will more than likely derive benefits from electronic text. But, what about those who cannot read well? Will the use of computers for learning further separate the haves and havenots in America's public schools? Some educators believe the electronic text motivates students to work harder and, therefore, leads to greater learning successes.

A study by Stanford University researchers in 1982 demonstrated that electronic learning had a positive influence on students. The study revealed that students were more willing to share their work, exchange ideas, and listen to

suggestions made by friends. More importantly, the Stanford researchers found that students who worked on assignments with their computers spent longer amounts of time on their work than their pencil and paper counterparts. While the study didn't reveal why students spent more time on their assignments, it could be that electronic learning is more fun and motivates many students. While the Stanford study may provide educators with important information, teachers should be cautioned that there is no single approach that works with every learner.

### Consider Learning Style

Dr. Rita Dunn of St. John's University pioneered the use of learning styles. A learning style is a profile of how an individual prefers to work and learn. Some students like to work with other students and share information, but learning-style researchers discovered that some students prefer to work alone. Putting students who prefer to work alone in a small group may, in fact, impede their learning.

Other learning-style characteristics that have some significance for electronic learning include students' needs for mobility, nourishment, brightly lit rooms and teacher direction. The list goes on and on. What can one conclude? Be certain not to generalize that an electronic learning environment is always the best environment for all students.

On one hand, the electronic database will change the way students learn. Certainly TeleLearning and CompuServe are two examples of how students will acquire information and attend classes in the future. On the other hand, don't be hasty when writing off the traditional school concepts of learning. I suspect that there will be a balance between the two before the debate is over.

There are many advantages to electronic learning. One cannot argue with those who claim that electronic learning is easy to use, has the potential to be interactive, and provides up-to-date information upon request. While there are no definitive answers as to which system is "best," I suggest we take both and leave the arguments to the researchers. ■

---

*Address correspondence to Paul Kimmelman, Ed.D., 3239 Brooklawn, Norton, OH 44203.*



# HOT COCO'S BBS PHONE BOOK



by Bobby Ballard

**A**re your modems ready? The following list of BBSes (bulletin board systems) should be enough to keep even the most avid telecommunicator busy for months. There are 201 BBSes listed, and this list is by no means complete. It seems as if new BBSes spring up every day.

Several companies now sell software to turn your Color Computer into a host for a BBS. All anyone needs to become a SYSOP (system operator) is a modem, disk drive, and the inclination. BBSes can be more than an individual's hobby, too. Many serve as forums or clearinghouses for clubs, software vendors, or schools.

This list is arranged in numerical order by phone number. The numbers closest to your exchange will be cheaper to call.

When you connect with a BBS, expect to find gossip, opinions, information, and good "conversation." But watch out! Our best sources tell us that BBSes can be addictive. ■



Phone Number	BBS Name	City and State
201-572-0617	Colorama	Highland Park, NJ
201-637-6286	Colorama of NJ	Vienna, NJ
201-667-2504	Connection-80	NJ
201-688-7117	Forum-80	NJ
201-725-5028	CCIE	Manville, NJ
201-773-8265	Meadowlands CoCoNet	NJ
201-790-6795	Photo-80	NJ
201-827-7815	Peopelinks	Ogdenburg, NJ
201-842-7644	Connect-80	NJ
201-932-3887	Rutgers Univ. Microlab	NJ
201-992-4847	Communique-80	NJ
203-237-2668	Cool CoCo	Wallingford, CT
203-334-5778	Mission Control	Bridgeport, CT
203-774-4644	Bullet-80	CT
203-828-3158	Cool CoCo	CT
206-255-5150	The Light House	Renton, WA
206-256-2321	Northwest Color Connect	Vancouver, WA
206-756-0448	TBBS-Tech	WA
209-223-3800	Gold Country BBS	Jackson, CA
209-526-2030	Valley Micro System	Modesto, CA
209-835-6496	Unknown	Tracy, CA
209-836-1074	Color 80	Tracy, CA
212-347-0227	CoCo's Nest Colorama	New York, NY
213-244-1100	Fantasy Plaza	Burbank, CA
213-258-0640	Musashi Network	Los Angeles, CA
213-285-2067	Color-80	Los Angeles, CA
213-388-5198	Magnetic Fantasies	CA
213-563-7727	LA Color Exchange	Los Angeles, CA
213-690-4589	The Next Step	Los Angeles, CA
214-692-0513	Careers	Dallas, TX
215-253-1236	Color-80	Easton, PA
215-256-6336	Bullet-80	PA
215-277-6951	My BBS (OS-9)	PA
215-783-0291	Valley Forge	PA
215-857-3035	Color 80	Parkersburg, PA
216-645-0827	Comnet	OH
216-788-7910	CoCo Nut Tree	Youngstown, OH
217-753-3167	Link Up	Springfield, IL
219-256-5782	SAGCOM CoCo Line	Mishawaka, IN
219-923-0584	Rainboard	IN
301-344-9156	Get-Away Special User Net	MD
301-599-1726	Color-80	MD
303-249-7866	Color 80	Montrose, CO
303-690-4566	Connection-80	Denver, CO
303-690-9423	Controller Board	Aurora, CO
304-345-8280	Charleston Network	Charleston, WV
304-599-0760	Mountaineer	Morgantown, WV
304-744-2491	Micro Databank	WV
304-925-3338	21st Century Connection	Charleston, WV
305-274-3394	Remote OS-9	Miami, FL
305-525-1192	Trade-80	Ft. Lauderdale, FL
305-681-6809	CoCo Corner #1	Hialeah, FL
305-681-8490	CoCo Corner #2	Hialeah, FL
305-739-1224	Irate's Den	Lauderhill, FL
305-751-6809	Color Info Center	Miami, FL
305-772-4444	Forum-80	Ft. Lauderdale, FL
305-845-6466	On-Line Software Library	N. Palm Beach, FL
308-665-1526	Colorama of Crawford	Crawford, NE
312-278-9513	Howard Medical Computers	Chicago, IL
312-286-9015	Skylink	Chicago, IL
312-397-8308	OS-9 User's Group	Palatine, IL
312-475-4884	Games Master	IL
312-597-8485	Creme de CoCo	Blis, IL
312-720-0796	CoCo Extraordinaire	Chicago, IL
312-879-6811	Speech Systems	Batavia, IL
313-582-3406	DSL Computer	Dearborn, MI
313-628-4350	Bunkie's Place	MI
313-981-5061	CoCo Club	Canton, MI
315-487-0503	Color-80 of Syracuse	Syracuse, NY
316-686-3813	Color-80	Wichita, KS
317-743-3897	Aviation BBS	W. Lafayette, IN
401-272-1138	SYSLink-80	Providence, RI
401-521-2626	Colorama	Providence, RI
403-474-0147	Northern Alberta CoCo	Edmonton, Alberta, CD
404-378-4410	CoCo Board II	Atlanta, GA
404-891-0136	Unknown	Ringgold, GA
405-248-8433	Shambala	Lawton, OK
405-722-6809	TBBS	Oklahoma City, OK
405-728-7654	Flexnet	Oklahoma City, OK

Phone Number	BBS Name	City and State
408-773-6809	Color-80	CA
408-984-7937	Rainbow No. 5	San Jose, CA
409-983-2383	CoCo Club BBS	Port Arthur, TX
412-662-2247	Computer-Aided Instruction System	Youngstown, OH
412-744-2335	CoCoNet	W. Mifflin, PA
414-259-9475	Big Top BBS	WI
414-637-9990	ABBS Colortron Computer	Racine, WI
415-276-6322	The Data Forum	Hayward, CA
415-782-4402	System-80	San Leandro, CA
415-821-1714	South of the Market	CA
416-494-7001	Colour BBS	Toronto, Ontario, CD
416-653-2248	Colour Dragon No. 1	Toronto, Ontario, CD
416-689-7950	Dave's Datacom	Toronto, Ontario, CD
417-781-4020	Unknown	Joplin, MO
501-735-5614	CoBBS No. 1	W. Memphis, AR
502-456-5531	The Assembly Line	KY
503-235-5114	Newsoft, Inc.	Portland, OR
503-649-4497	Bee Color BBS	Aloha, OR
503-655-9181	KGON BBS	Portland, OR
503-761-6345	Bit Bucket System	Portland, OR
504-277-9450	New Orleans CoCo BBS	New Orleans, LA
504-891-2262	Unknown	New Orleans, LA
509-489-5133	The Northwest Data BBS	WA
512-271-0705	Rainboard	San Antonio, TX
512-285-5028	Colorama	Elgin, TX
512-655-8143	Bathroom Wall BBS	TX
513-396-7467	CINSOFT	Cincinnati, OH
513-474-2985	CINTUG	Cincinnati, OH
513-742-1895	TBBS	Cincinnati, OH
514-845-5452	Rainbow Canada	CD
515-277-6510	CoCo Club	Des Moines, IA
516-249-3449	CoCo Nest OS-9	Centereach, NY
516-277-1285	Colorama	Islip Terrace, NY
516-331-3718	Colorama	Port Jefferson Sta., NY
516-482-8491	Connection-80	Great Neck, NY

Circle Reader Service card #23

## IS YOUR COMPUTER IGNORING YOU ???



ENG SYSTEMS LABORATORIES  
8203 Springfield Village Drive  
Springfield, Virginia 22152

(703) 569-8660

You've just typed in the Gettysburg Address and now you see that your computer only heard every other word!

THE KRICKIT CHIRPS ONLY WHEN YOUR COMPUTER HAS CAUGHT THE KEY. With the Kricket, there is no wasted effort pounding keys to make sure they contact or looking at the screen after every character. You can keep your eyes on the listing and not lose your place.

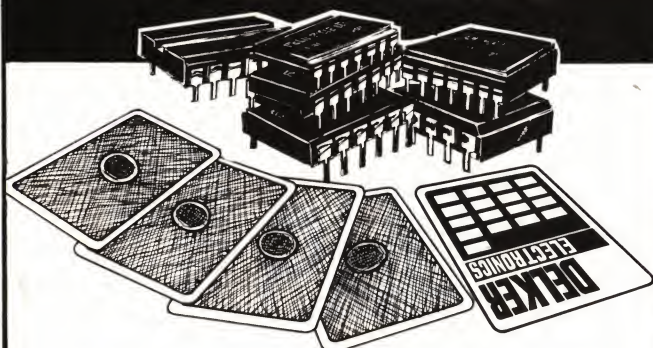
Works great with text editors and DBM's (Telewriter-64 and Homebase, to name a few) or when entering programs with just the BASIC line-editor in your computer. Just plugs in! Needs no software or hardware modifications. Built-in speaker! Uses no CPU time! Your computer has better things to do than sound key beeps.

The Kricket has other valuable features, too. A convenient switch controls the Cartridge Interrupt line. Instead of clumsy, messy tape on fingers 7 or 8, just flip the switch to access Basic with a game pak installed. It also has a more accessible reset switch, lighted power indicators, gold edge-fingers and an extension cable.

We are sure that after you try the Kricket you will never want to be without it. Take 30 days to decide you like it or return it for a full refund. 24-hour order line. Order yours today for only \$59.95 (plus shipping and handling). COD, Visa, and Mastercard accepted.



# It's time we put our chips on the table



**and showed you our best  
deals on computer hardware.**

## HARDWARE SPECIALS

Extended Basic w/bk	\$ 39.95	26-1192 CGP-115 Printer/Plotter	\$119.95
64k (DEI) Memory Upg	\$ 59.95	26-1276 DMP-105 Printer 80 cps	\$179.95
26-3029 CoCo Drive 0	\$275.00	C. Itoh 8510 AP Printer 120 cps	\$399.95
26-3023 CoCo Drive 1	\$229.00	Gorilla/NAP Video Monitor (Grn)	109.95
HJL Keyboard (D.E.F.2)	\$ 79.95	Video Monitor Adapters	\$ 29.95
Super Pro Keybd. (D.E)	\$ 64.95	26-3024 RS Multi-Pac Interface	\$ 89.95
<b>26-3127 64K Extended CoCo2</b>	<b>\$179.95</b>	Botek Ser/Par Interface	\$ 69.95
26-3134 16K Standard CoCo2	\$ 89.95	CGP-220 Ink Jet Printer	\$379.00
26-3136 16K Extended CoCo2	\$129.95	DMP 110 Printer	\$349.00
<b>26-3801 Model 100 8K</b>	<b>\$349.95</b>	DWP 210 Printer	\$379.00
26-3816P 8K Upgrade Model 100	\$ 69.95		

## ACCESSORIES

Volsmodem 1200	\$299.00	Mach II Joystick	\$ 39.95
RS D.C. Modem IB	\$ 89.95	26-3030 OS-9 (64k)	\$ 64.95 (disk)
Novation J-Cat Modem	\$129.95	Basic-09 (req. OS-9)	\$ 87.95 (disk)
RS D.C. Modem II	\$179.95	"C" Compiler (OS-9)	\$ 87.95 (disk)
USR Password 300	\$179.95	FHL O-Pak (req. OS-9)	\$ 34.95 (disk)
Hayes SM 300 Modem	\$239.95	Elite Word	\$ 59.95 (d&c)
USR Password 1200	\$429.00	Elite Calc	\$ 59.95 (d&c)
CoCo Switcher	\$ 39.95	Color Term Plus	\$29.95 (cass)
Elephant Disks ssdd	\$ 22.95	Deft Pascal	\$ 79.95
		26-3012 Deluxe Joystick	\$ 34.95

**NEW! Dual Double Sided Drives including  
case, power supply & cable \$475.00**

**NEW! 26-3128 64K  
Direct Video CoCo2 \$219.95**

## MSI SOFTWARE

MSI DISKUTIL	NEW	\$ 19.95	MSI NAMEFILE	\$ 24.95
COLOR FINANCE 1		\$ 49.95	MSI CALENDAR	NEW \$ 19.95
COLOR FINANCE II	NEW	\$ 69.95	MSI COLOR PAYROLL	NEW \$ 99.95

Call for prices and availability of your favorite software and hardware. All advertised items subject to availability. Prices do not include shipping and handling. All of the above units are covered by our 120 day carry-in warranty.

TRS-80 Trademark Tandy Corporation. Prices subject to change without notice. Write for our FREE newsletter.



**DELKER ELECTRONICS, INC.**

P.O. Box 897  
408C Nissan Blvd. Smyrna, TN 37167

Call Toll Free:  
**800-251-5008**  
**800-545-2502** (TENNESSEE)  
**615-459-2636** (TENNESSEE)  
**615-254-0088** (NASHVILLE)



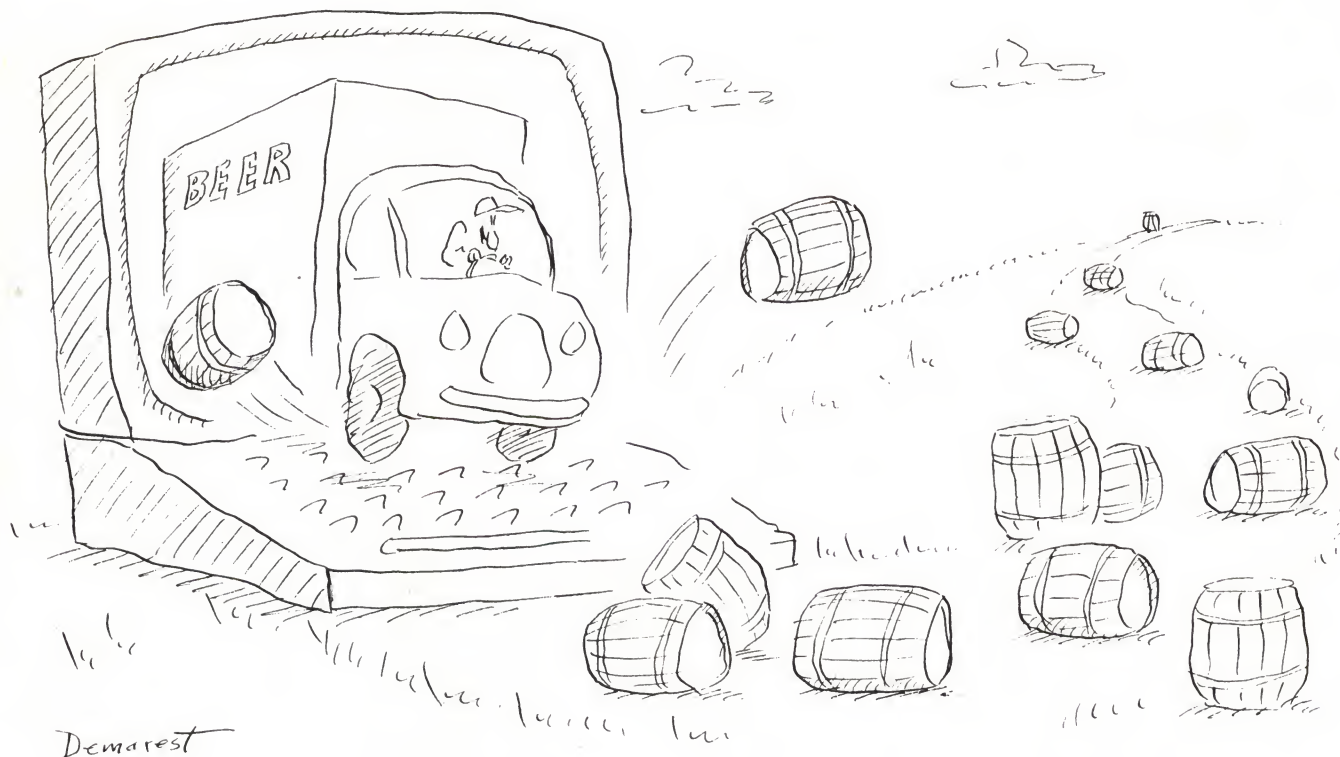
## Phone Number BBS Name

516-588-5836	Connection-80
516-783-7582	Color Channel
516-924-8115	Connect-80
517-339-3367	Delta
517-793-1579	C/Net
602-245-0488	CoCoNet Phoenix
602-866-8141	Sands of CoCo
603-924-6985	80 Micro's BBS Express
603-924-7920	Magazine-80
604-585-0680	Color-80
604-738-2773	The Color Pacific BBS
609-468-3844	CoCoMat
609-799-4643	The Gandalf Board
612-757-2439	Selected Software
615-842-6809	68 Micro Journal
616-956-9553	Tom Mix Software
617-321-6809	Color 80
617-646-6809	Logical Products
619-225-1825	Color 80
619-368-3839	Connection 80
619-474-8981	Jarb/CoCo SIG
701-280-1928	Color Computer BBS
701-281-0233	Dakota Database
701-839-0390	Country Micro BBS
703-476-1147	Samoh BBS
703-978-7561	Family Historians Network
707-257-1485	6809 Morning Star BBS
707-437-3663	Falcon Color 80
713-331-2599	Freelancin' No. 1
713-488-2003	Freelancin' No. 2
713-941-1542	Fat Fingers
714-350-2668	Color Corner
716-248-2743	Spectra-80 No. 1
716-283-8633	Unknown
717-652-8659	Colorama
717-774-6543	CAPATUG BBS
718-423-4623	CoCo Nest
718-442-3874	Syster BBS
718-877-7703	People's Links
801-544-3423	Time Link
802-862-7023	Mousenet
803-279-5392	Augusta Forum TBBS
803-288-0613	DLOAD OS-9 BBS
803-755-3414	Midlands 80 TBBS
803-763-1056	Colorama
804-525-0312	7 Hills Hillbilly Board
804-868-0922	Tidewater CoCoSIG BBS
804-887-5302	Gamma Color 80
805-484-5491	Colorama of Camarillo
805-687-9400	CoCo Corner BBS
808-262-5110	Colorama of Hawaii
812-476-9453	Evansville Connection
813-345-8100	Colorama of St. Petersburg
813-733-2415	Colorama of Dunedin
813-879-1105	The CoCo BBS
813-924-2626	Color-80
815-458-6628	Colorama
816-232-4932	The Pony Express
816-358-6222	TBBS
817-641-0133	Dragonfire BBS
817-767-5847	Commnet-80
902-683-2086	Great White North BBS
902-857-9843	Colorama
904-264-0335	Colour-80
904-378-9222	CoCo OS-9 BBS
904-456-7195	Dr. D's CoCo Corner
907-356-2626	CoCo Cold BBS
913-384-2196	Online Beta Sigma Pi
913-478-3329	Color 80
914-358-6840	Modem Link BBS
914-362-1422	The Game Machine
914-632-1840	Westchester BBS
914-965-2355	Westchester BBS
914-965-7600	Colorama
915-565-9903	El Paso Trade School
915-598-4384	Colorama of El Paso
916-381-8788	Sacramento CCC
919-758-5261	Sangarnet

## City and State

Long Island, NY
Long Island, NY
Suffolk, NY
Lansing, MI
Saginaw, MI
Phoenix, AZ
Phoenix, AZ
Peterborough, NH
Peterborough, NH
Delta, BC, CD
Vancouver, BC, CD
NJ
NJ
Fridley, MN
Hixson, TN
Grand Rapids, MI
Malden, MA
Arlington, MA
San Diego, CA
Twenty-Nine Palms, CA
San Diego, CA
Fargo, ND
Riverside, ND
Fargo, ND
Reston, VA
VA
CA
Travis AFB, CA
Houston, TX
Houston, TX
Houston, TX
Fontana, CA
Rochester, NY
Niagra Falls, NY
Harrisburg, PA
New Cumberland, PA
Queens, NY
Staten Island, NY
Staten Island, NY
Clearfield, UT
VT
Augusta, SC
Mauldin, SC
Columbia, SC
Charleston, SC
Forest, VA
Tabb, VA
Willaimsburg, VA
Camarillo, CA
Santa Barbara, CA
HI
Evansville, IN
St. Petersburg, FL
Dunedin, FL
Tampa, FL
Sarasota, FL
Will County, IL
St. Joseph, MO
Kansas City, MO
Cleburne, TX
TX
Port Mouton, NS, CD
Hubbards, NS, CD
Orange Park, FL
Gainesville, FL
FL
Ft. Wainwright, AK
Kansas City, KS
Topeka, KS
Nyack, NY
Pomona, NY
New Rochelle, NY
Westchester, NY
Yonkers, NY
El Paso, TX
El Paso, TX
Sacramento, CA
Greenville, NC





# BARREL RUN

*Ninety-nine barrels of beer on the road  
and your job is to retrieve them without hitting any.*

An automated beer factory has gone wild and is throwing barrels of beer out onto the road. Your job is to retrieve these barrels. As you drive your beer truck down the road, try to maneuver yourself alongside a barrel without hitting it, and the truck will pick it up, giving you a point. Use the left- and right-arrow keys to control your movement. As the game progresses, more and more barrels appear on the road, and it is increasingly difficult to avoid hitting them. When you hit one, the game ends, and you are then asked to play again.

The game automatically increases its level of difficulty. I used the high-speed POKE to speed up the game. If your computer can't handle this POKE, delete line 4 in the Program Listing. ■

4	Speedup POKE
5	Display title page
6	Establish all needed strings
7-8	Draw screen and initialize variables
9-10	Check left- and right-arrow keys
11	Reset old position and check for skill level increase
12	Set new position and check for crash
13-14	Check left and right for barrels
15	Set barrels
16	Check for new high score
17	Loop
18	Crash subroutine
19-20	Continue?
21	Reset screen and play again

Table 1. Summary of Line Functions

## System Requirements

4K RAM  
Color Basic

### Program Listing. Barrel Run

```

4 POKE65495,0
5 X=RND(-TIMER):CLS:AS=CHR$(207);PRINT234,"alro presents";:POKE1262,32
6 FORT=1T014:AS=AS+CHR$(128):NEX
T:AS=AS+CHR$(207):FORX=1T016:BS=
BS+CHR$(207):NEXT:FORX=1T016:C$=
C$+CHR$(204):NEXT:FORT=1T06:DS=D
$+CHR$(128):NEXT:ES=CHR$(128)+"P
RESS ANY KEY":FORT=1T01400:NEXT
7 CLS:FORT=0T0480STEP32:PRINT@
AS,:NEXT:PRINT@16,BS,:PRINT@48,
C$,:PRINT@19,"barrel run";:POKE1
049,32:GOTO19
8 PRINT@113,"SCORE-----":S:PRINT
@145,"HI SCORE---":HS:X=15:Y=31:A
=X:B=Y:SL=18
9 IFPEEK(343)=247ANDPOINT(X-1,Y-
1)>4THENX=X-1:POKE343,0
10 IFPEEK(344)=247ANDPOINT(X+1,Y
-1)>4THENX=X+1:POKE344,0
11 RESET(A,B):Y=Y-1:IFY=0THENY=3
1:IFSL>.1THENSL=SL-.1
12 SET(X,Y,4):A=X:B=Y:IFPOINT(X,
Y-1)THEN18
13 IFPOINT(X+1,Y)=4THENRESET(X+1
,Y):SOUND200,1:S=S+1:PRINT@123,S
;
14 IFPOINT(X-1,Y)=4THENRESET(X-1
,Y):SOUND200,1:S=S+1:PRINT@123,S
;
15 A1=RND(SL)-1:IFA1=0THENA2=RN
D(28)+1:A3=RND(30)+1:SET(A2,A3,4
)
16 IFS>HS THENHS=S:PRINT@155,HS
17 GOTO9
18 PRINT@245,"crunch";:FORT=1T01
0:SOUNDRND(2)+240,1:NEXT
19 PRINT@497,ES,:IS=INKEY$
20 IS=INKEY$:IFI$=""THEN20
21 FORT=0T0480STEP32:PRINT@2,AS;
:NEXT:S=0:PRINT@245,DS,:PRINT@49
7,"BY ALAN BLOUNT";:GOTO8

```

END

Address correspondence to Alan Blount, 339-32 1/2 Road, Palisade, CO 81526.



EDUCATION  
BY RICHARD RAMELLA





# Where's Tom?

*My name's Tom Sawyer.  
But you prob'ly don't know 'bout me less'n  
you read a book by Mr. Mark Twain. . .*



## ***System Requirements***

**16K RAM  
Extended Color Basic**

*Richard Cowdrey*





Where's Tom? explores Tom Sawyer's small but event-filled Missouri town in the spring and summer of 1845, the year that Mark Twain himself was 10 years old. You are a "literary time traveler" with the ability to move as observer and sometimes participant among the places and people in Tom's hamlet.

You discover certain high points of the story in the order they happen and move through 24 "chapters" toward the end of the book. The aim of the program is to create interest in reading the full story. If read aloud in short stints, some chapters of Tom Sawyer can appeal to children of first-grade age. By age 11 or 12, they are ready to read the book for themselves. At this stage, the story is a comic romp with deliciously scary parts. The more mature reader recognizes that Twain satirizes silly community conventions, and these burlesques hold up well even today.

Tom's world is geographically limited, to the point where a judge who has traveled from the county seat 12 miles distant greatly impresses the people of St. Petersburg. But Tom's mind roams free and far, for he has read many books. He is adventurous, he play-acts classic stories, and he has a great sense of form in his actions. He is a mischievous but moral child—a wonderful example of humanity.

### Try the Program

Before trying to key in the program and before CLOADing it from tape, you must clear the memory in your computer. To do this, type PMODE 0 and press enter, then type PCLEAR 1 and press enter. This temporarily eliminates extended graphic capability and makes enough room to hold the text program. Line 120 of the listing includes these two commands. Be assured that the graphics are not gone forever. When you finish running Where's Tom?, you return to the normal graphic state by turning the computer off and on once more.

After you load the program, type "RUN" and press enter. The title "Tom Sawyer" appears, along with the prompt "Start Chapter 1-24?" Type a chapter number and press enter. If you choose

outside the 1-24 range, the screen blanks and you have another try. I urge you to start with Chapter 1.

Your choices in the program are limited to four: moving in one of the four compass directions. You make your decisions when you see the prompt: "<N>orth <S>outh <E>ast <W>est?" You must tap N, S, E, or W.

The program is an electronic time map of Tom's town. You travel, in turn, among the available sites in search of the next plot occurrence. At each stop you learn something. When you find the right area to advance the plot, the action described starts with three asterisks (\*\*\*). You can't find the second plot until you've found the first, and this rule holds throughout the 24 chapters.

Where's Tom? is a game of exploration. You start the program traveling on the Mississippi River. You soon learn that Tom lives with his Aunt Polly and that Jackson's Island is in the middle of the river. This island also has the mysterious McDougal's Cave on it. I've written the program so its plot information unfolds fluidly a letter at a time. Since it's not likely that you'll reach the end of the story on the first try, I built in a bookmark. At any time while the information is appearing on the screen, you can end the program by pressing the Q key (Q stands for quit). The screen blanks, the computer announces the chapter at which you stopped, and the program ends. Later, you can enter the same chapter number at the start and pick up at the same point in the story.

If the words of the story unfold too quickly for you, stop them by tapping any key except Q, break, or shift. Do the same thing to start the flow again. If, at times, the narrative seems to stop, be patient. The program might be in a timing loop, which lasts no more than two or three seconds. If the program appears to hang up during the appearance of a narrative, you might unknowingly have pressed a key that stopped the flow. Just tap a key to restart. ■

Address correspondence to Richard Ramella, 1493 Mt. View Ave., Chico, CA 95926.

### Program Listing. Where's Tom?

```

120 CLS: PMODE 0: PCLEAR 1: CLEA
R 512: CLS
130 N$(1)="HANNIBAL": N$(2)="ST.
PETERSBURG": N$(3)="QUINCY"
140 PRINT "TOM SAWYER": PRINT
150 INPUT "START CHAPTER: 1 TO 2
4": C
160 C=INT(C): IF C<1 OR C>24 THE
N CLS: GOTO 140 ELSE CLS
170 ST$=STRING$(32,42): ZZ$="NWS
E": SS$=CHR$(32)
180 A$(1)="YOU'RE A LITERARY TIM
E TRAVELER RIDING A STERNWHEELER
DOWN THE MISSISSIPPI RIVER IN S
EARCH OF A BOY NAMED TOM SAWYER.
"
190 A$(2)=SS$+"THREE TOWNS ARE CO
MING UP. YOU WILL MAKE SHORE AT
ONE. TO DO SO, PRESS ANY KEY WHE
N YOU SEE THE RIGHT TOWN."
200 G=2: K=1: GOSUB 1610: CLS
210 FOR X=1 TO 3
220 PRINT @ 236,N$(X);
230 FOR T=1 TO 500
240 IF INKEY$<>" " THEN CLS: GOTO
290
250 NEXT T
260 CLS
270 NEXT X
280 A$(1)="YOU KEEP RIDING ON DO
WN TO NEW ORLEANS. IT'S AN INTER
ESTING TOWN, BUT TOM SAWYER'S NOT
THERE. --THE END.": K=1: GOSUB
1610: END
290 IF X=1 THEN A$(1)="A FAMOUS
TOWN. MARK TWAIN, WHOSE REAL NAM
E WAS SAMUEL LANGHORNE CLEMENS,
LIVED THERE WHEN HE WAS A BOY. B
UT TOM SAWYER NEVER DID. --THE EN
D.": GOSUB 1610: END
300 IF X=3 THEN A$(1)="YOU GOT O
FF IN ILLINOIS. YOU WANTED MISSO
URI. --THE END.": K=1: GOSUB 1610
: END
310 A$(1)="ST. PETERSBURG! TOM S
AWYER LIVES HERE." + SS$
320 A$(2)="YOU STAND AT THE FOOT
OF MAIN STREET IN A MISSOURI HA
MLET. THE YEAR IS 1845. NEARBY I
S THE TOWN SQUARE. TO THE EAST I
S THE MISSISSIPPI RIVER AND THE
GREEN BLUFFS OF ILLINOIS SHIMMER
ING IN MID-DAY HEAT."
330 A$(3)=SS$+"IN THE DISTANCE AR
E PRIM CLAPBOARD HOMES AND BEYON
D IS COUNTRYSIDE.": G=3: GOSUB 1
610
340 PRINT "THE RIVER LANDING:"
350 IF C=1 THEN A$(1)="YOU ARE A
T THE MAIN LANDING FOR RIVER TRA
FFIC"
360 IF C>1 THEN A$(1)="YOU STAND
AT THE RIVER LANDING. NOTHING M
UCH HAPPENING."
370 IF C=18 THEN A$(1)="*** EVER
YONE BOARDS SMALL BOATS FOR THE
PICNIC ON JACKSON'S ISLAND.": C=

```



```

19
380 GOSUB 1610
390 ON Z GOTO 1170,410,1320,400
400 AS(1)="YOU LEAP FULLY CLOTHE
D INTO THE MISSISSIPPI RIVER. ST
RANGE BEHAVIOR! YOU CRAWL OUT.":
K=1: GOSUB 1610: GOTO 340
410 PRINT "THE TOWN SQUARE:"
420 IF C=1 THEN AS(1)="THE CENTE
R OF COMMERCE OF THIS THRIVING M
ETROPOLIS. NO ONE ELSE IS PRESEN
T."
430 IF C>1 THEN AS(1)="AN UNEVEN
TFUL MOMENT IN CIVIC LIFE."
440 IF C>17 THEN AS(1)="THREE MY
STERIOUS CHARACTERS HEAD FOR 'NU
MBER TWO' AT THE TAVERN."
450 IF C>20 THEN AS(1)="EVERYONE
SEEMS TO BE ELSEWHERE."
460 GOSUB 1610
470 ON Z GOTO 1090,480,1240,340
480 PRINT "THE COURTHOUSE:"
490 IF C=1 THEN AS(1)="YOU SAUNT
ER UP THE WOODEN STAIRS OF THE C
OURTHOUSE. IT'S SATURDAY AND THE
BUILDING IS CLOSED."
500 IF C>1 THEN AS(1)="NOTHING I
NTERESTING GOING ON HERE."
510 IF C<>14 THEN 540
520 AS(1)="*** THE TRIAL OF MUFF
POTTER IS HELD. HIS GUILT SEEMS
CERTAIN TO THE TOWNSPEOPLE. THE
N POTTER'S LAWYER CALLS A SURPRI
SE WITNESS -- TOM. THE BOY TELLS
WHAT HAPPENED IN THE GRAVEYARD.
AS INJUN JOE HEARS HIMSELF ACCU
SED,"+SS$
530 AS(2)="HE CRASHES THROUGH A
WINDOW AND ESCAPES.": G=2: C=15
540 GOSUB 1610
550 ON Z GOTO 740,560,1530,410
560 PRINT "THE WIDOW DOUGLAS' HO
ME:"
570 IF C=1 THEN AS(1)="SHE ISN'T
SEEN. IN THE DISTANCE IS HEARD
A DOG'S LAZY BARK."
580 IF C>1 THEN AS(1)="THE WIDOW
DOUGLAS SMILES AND WAVES AS YOU
PASS BY"
590 IF C>5 THEN AS(1)="NO ONE HO
ME."
600 IF C=20 THEN AS(1)="*** HUCK
FOLLOWS INJUN JOE AND HIS GANG
TO THE WIDOW'S HOME. THE MEN PLA
N TO ROB HER. HUCK RUNS FOR HELP
AND ARMED TOWNSMEN HURRY TO THE
HOME. JOE AND THE MEN ESCAPE, B
UT THE WIDOW IS UNHARMED.": C=21
: GOTO 610
610 IF C=22 THEN AS(1)="WIDOW DO
UGLAS WORRIEDLY ASKS FOR NEWS OF
TOM AND BECKY. YOU SADLY REPLY
THERE IS NONE."
620 IF C=23 THEN AS(1)="WIDOW DO
UGLAS PREPARES FOR A PARTY."
630 IF C=24 THEN AS(1)="*** A GA
LA PARTY IS HELD TO CELEBRATE AL

```

```

L THE GOOD THINGS THAT HAVE HAPP
ENED. TOM AND HUCK REVEAL THE TR
EASURE THEY HAVE FOUND. A HAPPY
CONCLUSION. -THE END."
640 IF C=24 THEN K=1
650 GOSUB 1610
660 IF C=24 THEN END
670 ON Z GOTO 740,680,1530,1090
680 PRINT "A FOREST:"
690 IF C<>5 THEN AS(1)="YOU WAND
ER INTO A STAND OF TREES. THESE
WOODS ARE A LIKELY SITE FOR CHIL
DREN'S GAMES."
700 IF C=5 THEN AS(1)="*** TOM A
ND JOE HARPER PLAY ROBIN HOOD. T
HEY AGREE THEY WOULD RATHER BE O
UTLAWS A YEAR IN SHERWOOD FOREST
THAN PRESIDENT OF THE UNITED ST
ATES FOREVER.": C=6
710 GOSUB 1610
720 ON Z GOTO 730,560,740,960
730 AS(1)="THE WOODS LEAD NOWHER
E INTERESTING NORTHWARD, SO YOU
RETURN.": K=1: GOSUB 1610: GOTO
680
740 PRINT "AUNT POLLY'S HOME:"
750 IF C>1 THEN 800
760 AS(1)="*** YOU HAVE FOUND TO
M SAWYER. HE STANDS GLUMLY BEFOR
E A PEELING FENCE. A BUCKET OF W
HITEWASH AND A BRUSH ARE NEARBY.
AS YOU WATCH HE TRIES TO PAY"+S
$
770 AS(2)="OTHER CHILDREN TO WOR
K. THEY REFUSE. THEN HE GETS AN
IDEA. HE PRETENDS TO TAKE GREAT
PLEASURE FROM THE PAINTING. THIS
CAUSES OTHERS TO PAY FOR THE PR
IVILEGE OF HELPING."+SS$
780 AS(3)="TOM DISCOVERS HE CAN'
T BUY HELP BUT HE CAN SELL WORK!
THE FENCE IS QUICKLY DAUBED. HA
PPY AND RICH FROM THE EXPERIENCE
, TOM GOES TO PLAY."
790 C=C+1: G=4: GOTO 880
800 IF C=2 THEN AS(1)="AUNT POLL
Y MARVELS OVER THE NEWLY-PAINTED
FENCE AND WONDERS HOW TOM DID I
T."
810 IF C>2 THEN AS(1)="ALL IS QU
IET."
820 IF C=3 OR C=12 THEN AS(1)="I
T'S SUNDAY MORNING. EVERYONE IS
GONE SOMEWHERE."
830 IF C=4 OR C=13 THEN AS(1)="A
UNT POLLY DOES HOUSEWORK. WITH S
ID AND TOM AT SCHOOL, ALL IS PEA
CEFUL"
840 IF C=22 THEN AS(1)="*** TOM
AND HUCK ARE REUNITED. HUCK TELL
S WHAT HE SAW AT THE TAVERN, BUT
TOM SAYS THE TREASURE NEVER WAS
IN 'NUMBER TWO' AND PROMISES TO
TAKE HUCK TO THE BOOTY. THEY LE
AVE": C=23
850 IF C=9 THEN AS(1)="IT'S GROW
ING LATE, AND AUNT POLLY WONDERS

```

```

WHERE TOM IS."
860 IF C=10 THEN AS(1)="*** TOM
SNEAKS HOME AND HEARS AUNT POLLY
, SID AND MARY SPEAK OF HIM AS I
F HE WERE DEAD. HE SLIPS AWAY.":
C=11: GOTO 880
870 IF C=11 THEN AS(1)="AUNT POL
LY'S GRIEF DEEPENS."
880 GOSUB 1610
890 ON Z GOTO 680,560,480,900
900 PRINT "THE NEIGHBORHOOD:"
910 IF C=1 THEN AS(1)="YOU WALK
ALONG A LANE THROUGH A NEIGHBORH
OOD. A COMMOTION OF CHILDREN'S V
OICES IS HEARD NEARBY."
920 IF C>1 THEN AS(1)="THE AREA
IS EMPTY."
930 IF C=15 THEN AS(1)="*** TOM
AND HUCK ARE TOWN HEROES FOR BEA
RING WITNESS AGAINST INJUN JOE.
BUT THE BOYS ARE WORRIED JOE WIL
L COME AFTER THEM. QUICKLY, THEY
FORGET THEIR WORRY AND DECIDE T
O DIG FOR TREASURE. WHERE?": C=1
6
940 GOSUB 1610
950 ON Z GOTO 680,740,1090,1030
960 PRINT "AN OLD HOUSE:"
970 IF C<>16 THEN AS(1)="HERE IS
AN OLD ROTTING HOUSE. SOME SAY
IT'S HAUNTED. STRANGE NOISES..."
980 IF C=16 THEN AS(1)="*** TOM
AND HUCK ENTER THE HOUSE SEEKING
TREASURE BUT HIDE WHEN THEY HEA
R NOISES. INJUN JOE AND HIS GANG
ARE THERE. THE MEN LEAVE WITH A
BOX OF STOLEN SILVER. JOE SAYS
THEY'LL HIDE IT IN 'NUMBER TWO'.
"+SS$
990 IF C=16 THEN AS(2)="THE BOYS
PUZZLE OVER THAT AND VOW TO SEA
RCH FOR THE SILVER.": G=2: C=17
1000 GOSUB 1610
1010 ON Z GOTO 1020,680,1380,102
0
1020 AS(1)="NOTHING INTERESTING
THAT WAY": GOSUB 1610: GOTO 1010
1030 PRINT "LAWYER THATCHER'S HO
ME:"
1040 IF C=1 THEN AS(1)="YOU PASS
BY THE THATCHER'S HOUSE, SEEING
A PRETTY GIRL ABOUT 10 YEARS OL
D. THAT MUST BE HIS NIECE, BECKY
."
1050 IF C>2 THEN AS(1)="NO ONE I
N THE AREA."
1060 IF C=2 THEN AS(1)="*** TOM
PLAYS GENERAL FOR A WHILE. THEN
HE SEES THE LOVELY BECKY THATCHE
R IN THE GARDEN OF HER UNCLE'S H
OME. HE FALLS IN LOVE.": C=3
1070 GOSUB 1610
1080 ON Z GOTO 680,900,1170,960
1090 PRINT "THE CHURCH:"
1100 IF C=1 THEN AS(1)="THE CHOI
R IS PRACTICING. YOU LISTEN FOR

```

Listing continued



```

A WHILE AND LEAVE."
1110 IF C=3 THEN A$(1)="*** TOM
TRADES SOME FENCE-PAINTING LOOT
FOR SUNDAY SCHOOL TICKETS MEANT
TO BE EARNED BY MEMORIZING BIBLE
VERSES. HE THUS 'QUALIFIES' TO
RECEIVE A BIBLE. THIS IS A SWEET
VICTORY BECAUSE BECKY IS PRESEN
T."+SS
1120 IF C=3 THEN A$(2)="HOWEVER,
IN SHOWING OFF, TOM IDENTIFIES
THE FIRST TWO DISCIPLES AS DAVID
AND GOLIATH. HOW EMBARRASSING!"
: G=2: C=4: GOTO 1150
1130 IF C>1 THEN A$(1)="THE CHUR
CH IS OPEN BUT EMPTY."
1140 IF C=12 THEN A$(1)="*** THE
TOWN GATHERS FOR THE FUNERAL OF
THE LOST BOYS. AND UP THE AISLE
MARCH THE MISSING LADS: TOM, HU
CK AND JOE. THE CONGREGATION BUR
STS INTO A HYMN OF THANKSGIVING.
AUNT POLLY HUGS TOM. SHE ISN'T
ANGRY." : C=13
1150 GOSUB 1610
1160 ON Z GOTO 900,560,410,1170
1170 PRINT "THE SCHOOL:"
1180 IF C=1 THEN A$(1)="THROUGH
A WINDOW YOU SEE MR. DOBBINS, TH
E TEACHER. HE SNOOZES AT HIS DES
K."
1190 IF C>1 THEN A$(1)="NO ONE H
ERE. IS IT SUMMER VACATION YET?"

1200 IF C=4 THEN A$(1)="*** AS P
UNISHMENT, TOM IS MADE TO SIT BY
THE NEW GIRL, BECKY THATCHER. H
E LOVES THIS. BY DAY'S END THEY
ARE 'ENGAGED.'" : C=5
1210 IF C=13 THEN A$(1)="*** TOM
IS HAPPY TO BE BACK IN HIS REGU
LAR LIFE. HE AND BECKY HAVE AN A
RGUMENT ... LATER, BECKY TEARS T
HE TEACHER'S ANATOMY BOOK. WHEN
TOM TAKES THE BLAME FOR HER, SHE
LOVES HIM AGAIN." : C=14
1220 GOSUB 1610
1230 ON Z GOTO 1030,1090,340,960
1240 PRINT "THE TAVERN:"
1250 IF C=1 THEN A$(1)="IT'S ST.
PETERSBURG'S MOST DISREPUTABLE
PLACE. A SHAKY MUFF POTTER, THE
TOWN DRUNK, ASKS FOR A FIVE-CENT
PIECE. YOU REFUSE BUT BUY HIM A
SASPARILLA"
1260 IF C>1 THEN A$(1)="JUST THE
USUAL GOING ON HERE, AND AT ALL
HOURS."
1270 IF C=17 THEN A$(1)="*** IN
SEARCH OF INJUN JOE'S SILVER TRE
ASURE, TOM AND HUCK INVESTIGATE
LOCAL TAVERNS. ONE HAS A LOCKED
ROOM TWO. COULD THIS BE THE 'NUM
BER TWO'?" +SS
1280 IF C=17 THEN A$(2)="... LAT
ER, HUCK MAKES A KEY WORK. ENTER
ING, HE ALMOST STEPS ON A SLEEP
ING INJUN JOE'S HEAD. NO TREASURE
SEEN. HUCK AND TOM RUN AWAY." :
G=2: C=18
1290 IF C=19 THEN A$(1)="*** HUC
K, WHO HAS NOT GONE TO THE PICNI
C, SEES THREE MEN EXIT 'NUMBER T
WO' CARRYING A BOX. HE FOLLOWS T
HEM AND HEARS INJUN JOE THREATEN
THE WIDOW DOUGLAS." : C=20
1300 GOSUB 1610
1310 ON Z GOTO 410,1530,1320,340
1320 PRINT "THE OLD TANNERY:"
1330 IF C<>7 THEN A$(1)="NO ONE
IS HERE AT THE MOMENT."
1340 IF C=7 THEN A$(1)="*** TOM
AND HUCK RUN HERE FROM THE GRAVE
YARD. THEY ARE SO FRIGHTENED BY
THE MURDER THEY SAW, THEY TAKE A
SOLEMN BLOOD OATH TO TELL NO ON
E." : C=8
1350 GOSUB 1610
1360 ON Z GOTO 340,1530,1370,137
0
1370 A$(1)="YOU'RE HEADED FOR ST
. LOUIS, SO YOU TURN AROUND." : K
=1: GOSUB 1610: GOTO 1320
1380 PRINT "JACKSON'S ISLAND:"
1390 A$(1)="LOCATED IN MID-RIVER
, THIS IS AN OBVIOUS PARADISE FO
R CHILDREN."
1400 IF C=10 THEN A$(1)="HUCK AN
D JOE ARE ON THE ISLAND. TOM IS
GONE."
1410 IF C=9 THEN A$(1)="*** TOM,
HUCK AND JOE HARPER RUN AWAY TO
PLAY PIRATE ON JACKSON ISLAND.
THEY REMAIN THERE TWO DAYS WITH
NO THOUGHT OF ANYONE WORRYING AB
OUT THEM." : C=10
1420 IF C=11 THEN A$(1)="*** THE
BOYS REMAIN ON JACKSON ISLAND.
A STORM DAMPENS THEIR SPIRIT OF
ADVENTURE. THEY THINK OF HOME." :
C=12
1430 GOSUB 1610
1440 IF C<>2 AND Z<>3 THEN A$(1)
="YOU TAKE A SWIM AND RETURN TO
SHORE." : K=1: GOSUB 1610: GOTO 1
380
1450 IF Z=2 THEN A$(1)="YOU TAKE
A BOAT BACK TO ST. PETERSBURG."
: K=1: GOSUB 1610: GOTO 340
1460 PRINT "MCDUGAL'S CAVE:"
1470 IF C<21 THEN A$(1)="IT'S SA
ID THE MYSTERIOUS CAVE IS IN THI
S AREA, BUT YOU CAN'T FIND IT. Y
OU SEEM TO BE CIRCLING."
1480 IF C=21 THEN A$(1)="*** YOU
ENTER THE CAVE. TOM AND BECKY A
RE SOMEWHERE WITHIN. SO IS INJUN
JOE. TOM AND BECKY ESCAPE. TWO
WEEKS PASS. TOM DISCOVERS THE CA
VE HAS BEEN SEALED." +SS
1490 IF C=21 THEN A$(2)="*** TOM
LEADS TOWNSMEN TO THE CAVE. INJ
UN JOE HAS DIED WITHIN." : G=2: C
=22
1500 IF C=23 THEN A$(1)="TOM AND
HUCK FIND THE TREASURE OF GOLD:
$12,000!" : C=24
1510 GOSUB 1610
1520 ON Z GOTO 1380,1380,1380,13
80
1530 PRINT "THE GRAVEYARD:"
1540 A$(1)="IT'S LOVELY BY DAY B
UT UNSETTLING BY NIGHT."
1550 IF C=6 THEN A$(1)="*** TOM
AND HUCK GO TO THE GRAVEYARD TO
CAST A WART-CURING SPELL. HIDDEN
, THEY SEE DR. ROBINSON, INJUN J
OE AND MUFF POTTER DIGGING UP A
CORPSE FOR MEDICAL EXPERIMENTATI
ON. ROBINSON AND JOE ARGUE AND R
OBINSON IS KILLED BY JOE."
1560 IF C=6 THEN A$(2)="THE BOY
FLEE IN HORROR." : G=2: C=7
1570 IF C=8 THEN A$(1)="*** THE
TOWNSPEOPLE COME TO THE MURDER S
CENE. MUFF POTTER IS ARRESTED FO
R THE KILLING. TOM FEELS GUILTY
BUT KEEPS TO HIS BLOOD OATH WITH
HUCK AND SAYS NOTHING." : C=9
1580 GOSUB 1610
1590 ON Z GOTO 480,560,1600,1320
1600 A$(1)="WOODED BLUFFS ARE IM
PASSABLE" : K=1: GOSUB 1610: GOTO
1530
1610 IF G=0 THEN G=1
1620 FOR H=1 TO G
1630 FOR X=1 TO LEN(A$(H))
1640 W$=MID$(A$(H),X,1)
1650 PRINT W$;
1660 P$=INKEY$: IF P$="Q" THEN C
LS: PRINT "YOU STOP AT CHAPTER"C
: END
1670 IF P$<>" " THEN CT=CT+1
1680 IF CT=1 THEN 1660 ELSE CT=0
1690 LL=LL+1
1700 IF LL>15 AND W$=S$ AND INST
R(MID$(A$(H),X+1,31-LL),CHR$(32)
)=0 THEN LL=0: PRINT
1710 NEXT X,H
1720 PRINT
1730 PRINT ST$;
1740 IF K=1 THEN FOR T=1 TO 1200
: NEXT T
1750 LL=0
1760 IF K=1 THEN K=0: G=0: RETUR
N
1770 PRINT "<N>ORTH <S>OUTH <E>A
ST <W>EST?"
1780 Z$=INKEY$
1790 IF Z$<>"N" AND Z$<>"S" AND
Z$<>"W" AND Z$<>"E" THEN 1780
1800 FOR X=1 TO 4
1810 IF MID$(Z$X,X,1)=Z$ THEN Z=
X
1820 NEXT X: PRINT ST$;
1830 CLS: G=0: RETURN
1840 END

```

END



# MOVING?

## SUBSCRIPTION PROBLEM?

Get help with your subscription by calling our new toll free number:

**1-800-645-9559\***

between 9 a.m. and 5 p.m. EST,  
Monday-Friday.

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If moving, please give both your old address and new address.

\* New York State residents call 1-800-732-9119.

Circle Reader Service card #361

## Now Your Computer Can See! \$295.00\*

A total imaging system complete and ready for plug-and-go operation with your personal computer.



MicronEye™  
"Bullet"

The MicronEye™ offers selectable resolution modes of 256 x 128 and 128 x 64 with operating speeds up to 15 FPS. An electronic shutter is easily controlled by software or manual functions, and the included sample programs allow you to continuously scan, freeze frame, frame store, frame compare, print and produce pictures in shades of grey from the moment you begin operation.

Only the MicronEye™ uses the revolutionary IS32 OpticRAM™ image sensor for automatic solid state image digitizing, with capability for grey-tone imaging through multiple scans. And with these features, the MicronEye™ is perfectly suited for graphics input, robotics, text and pattern recognition, security, digitizing, automated process control and many other applications.

The MicronEye™ is available with immediate delivery for these computers: Apple II, IBM PC, Commodore 64 and the TRS-80CC (trademarks of Apple Computer Inc., International Business Machines, Commodore Corp., and Tandy Corp. respectively).

Phone for MicronEye™ information on the Macintosh, TI PC and RS232 (trademarks of Apple Computer Inc. and Texas Instruments respectively.)

\* (Add \$10.00 for shipping and handling | Federal Express Standard Air; residents of the following states must add sales tax: AK, AZ, CA, CO, CT, FL, GA, IA, ID, IL, IN, LA, MA, MD, ME, MI, MN, NC, NE, NJ, NY, OH, PA, SC, TN, TX, UT, VA, VT, WA, WI.)

**MICRON TECHNOLOGY, INC.**

SYSTEMS GROUP

1475 Tyrell Lane

Boise, Idaho 83706

(208) 386-3800

TWX 910-970-5973

## PERRY COMPUTERS

Circle Reader Service card #124

### COLOR COMPUTERS

**CALL TOLL FREE 1-800-248-3823**

#### COLOR COMPUTER, DISK DRIVE AND PRINTERS

#### COLOR COMPUTER SOFTWARE

	LIST PRICE	OUR PRICE
26-3136 16K Extended Color Computer 2.....	\$ 139.95	\$ 120.00
26-3127 64K Extended Color Computer 2.....	\$ 199.95	\$ 169.00
26-3029 Disk Drive 0 for Color Computer.....	\$ 349.95	\$ 295.00
26-1161 Disk Drive 1, 2, 3 for Color Computer.....	\$ 279.95	\$ 230.00
26-1276 DMP-10580 cps Dot Matrix.....	\$ 199.95	\$ 169.00
26-1271 DMP-110 50/25 cps Triple Mode Printer.....	\$ 399.95	\$ 299.00
26-1255 DMP-120 120 cps Dual Mode Matrix.....	\$ 499.95	\$ 385.00
26-1257 DWP-210 14 cps Daisy Wheel Printer.....	\$ 459.00	\$ 485.00

	OUR PRICE
Telewriter 64 Tape.....	\$ 49.95
Telewriter 64 Disk.....	\$ 59.95
VIP Writer.....	\$ 59.95
VIP Speller.....	\$ 49.95
VIP Database.....	\$ 59.95
VIP Terminal Disk.....	\$ 49.95
TOM MIX Software.....	\$ CALL
RADIO SHACK Software.....	15% Off

#### OTHER PRINTERS AND ACCESSORIES

#### MONITORS

	OUR PRICE
EPSON Printer.....	\$ CALL
OKIDATA Printer.....	\$ CALL
STAR GEMINI 10X Printer.....	\$ 275.00
COMREX CR-II Daisy Wheel Printer.....	\$ 415.00
C.I.TOH 8510 Prowriter Printer.....	\$ 335.00
BOTEK Serial to Parallel Interface.....	\$ 59.00

	OUR PRICE
COMREX 12" Green Monitor.....	\$ 95.00
COMREX 12" Amber Monitor.....	\$ 110.00
COMREX 13" Color Monitor.....	\$ 285.00
AMDEK 300A Monitor.....	\$ 155.00
VIDEO PLUS Monitor Adaptor.....	\$ CALL
GORILLA Monitor.....	\$ 85.00

#### COLOR ACCESSORIES

	LIST PRICE	OUR PRICE
26-2226 RS-232 Program Pak.....	\$ 79.95	\$ 68.00
26-3012 Deluxe Joystick (EACH).....	\$ 39.00	\$ 34.00
26-3017 64K RAM Kit.....	\$ 69.95	\$ 59.00
26-3008 Joysticks.....	\$ 24.95	\$ 21.00
26-3016 Keyboard Kit.....	\$ 39.95	\$ 34.00

	LIST PRICE	OUR PRICE
26-3018 Extended Basic Kit.....	\$ 39.95	\$ 34.00
26-1175 Direct-Connect Modem I.....	\$ 99.95	\$ 85.00
26-1173 Direct-Connect Modem II.....	\$ 199.95	\$ 169.00
Signalman Modem 300/1200 Baud.....	\$ 399.00	\$ 275.00
Hayes Modems.....		\$ 215.00

All prices and offers may be changed or withdrawn without notice. Advertised prices are cash prices. For shipping, add 2% (minimum shipping charge \$3.00). C.O.D. accepted. (\$4.00 charge per carton on C.O.D. Call for further C.O.D. information.) M.C., Visa, A.K. add 3%.

**PERRY COMPUTERS • 137 NORTH MAIN STREET • PERRY, MI 48872**



# Share And Share Alike

*Don't make your peripherals compete for the RS-232 port.*

If you have more than one peripheral that gets its signal from the CoCo's RS-232 port, you need a switching device. Because the CoCo's RS-232 port has only four pins, it's easy to build an inexpensive device. A common 3PDT (three-pole, double-throw) switch can easily handle the job. Switching devices sell for \$30 to \$60 and more. You can build this one for less than \$12.

## Items You Will Need

You will need the tools and materials listed in Table 1, and you will need to buy the items listed in Table 2 and shown in Photo 1. You may elect to use RS-232 cables (Radio Shack no. 26-3020) you already have instead of the specified ribbon wire and plugs (or jacks). If you do, the cost will be less than \$5 for this project. Check the ends of your cables and the receptacles on your device to determine whether you need to buy plugs or jacks (male or female connectors). You will need three.

## Soldering Tips

Keep the tip of your soldering iron cleaned and tinned. Tinning is merely coating the tip with solder after cleaning

Soldering iron (25 or 30 watt)  
Rosin-core solder (Radio Shack 64-001, \$.89)  
Hand or power drill  
15/64- or 1/4-inch drill bit

Optional:  
Small needle-nosed pliers  
Small side-cutters (dykes)  
Wire-stripping tool

Table 1. Tools and Materials

it. Always heat the item to be soldered, and then touch the solder to it. If it's hot enough, the solder flows smoothly. Don't use too much heat as you can damage the component. Keep the tip of the iron against the item to be soldered as the solder flows. Practice with scraps until you get it right.

Always use rosin-core solder, never acid-core solder. Always make sure that the items to be soldered are clean. Solder won't properly bond to a dirty or corroded surface. Solder in a well-ventilated place and avoid breathing the fumes. Make sure you inspect your work for wire strands, solder strings, and other items that could short-circuit your project. A short-circuit is when two or more wires, leads, or contacts are electrically connected when they should not be.

Your solder joints should be smooth and shiny. A dull surface means you have a cold solder joint that won't work. Fix it now while you can get to it and do it over. Use a damp sponge or cotton cloth to clean excess solder from the hot solder tip. Be careful not to burn yourself. Protect your eyes because solder and rosin sometimes spatters.

## Step-by-Step Instructions

Cut three lengths of ribbon wire. Their length depends on how far from the computer and devices you plan to put your switches. I made mine only 18 inches long as I wanted my switchbox to connect to my existing cables, not di-

rectly to the computer and devices.

Decide where on the box you want the switch to be and drill a 15/64- or 1/4-inch hole there. Now decide where you want the cables to exit the box and drill the hole or holes there. Don't drill the holes in the metal part of the box unless you put rubber grommets on the metal edges to protect the wiring from abrasion and shorting. If you drill the holes through the plastic, you merely have to make sure you don't leave any sharp edges.

Strip 1/4-inch of insulation from the wires at each of the three ends of the ribbon cables you previously cut. Preheat your soldering iron. On the red, black, and white leads, bend the bare metal ends into hook shapes that fit into the holes in the contacts on the back of the switch. Trim off any excess. Tin all the ends (including the green wire) with a light coat of solder. (Refer to Soldering Tips if you don't remember what tinning is.)

Take the green leads at one end of each cable and twist them together. Solder these leads together, and after trimming off any excess, insulate the bare metal part of the wire. I use heat-shrink insulation (Radio Shack no. 278-1627A),

\*Ribbon cable (Radio Shack no. 278-757, \$2.39)  
\*3 4-pin DIN jacks (Radio Shack no. 274-018, \$1.49 each) or  
\*3 4-pin DIN plugs (Radio Shack no. 272-007, \$1.49 each)  
3PDT switch (Radio Shack no. 275-661, \$3.39)  
Experimenter box (Radio Shack no. 270-230, \$1.59)  
Total cost using ribbon cable and 3 plugs or jacks: \$11.84  
\* You don't need these items if you use your own plugs or jacks and wire.

Table 2. Items to Buy

## System Requirements

Any Color Computer





Photo 1. Parts Needed for the Switch Box

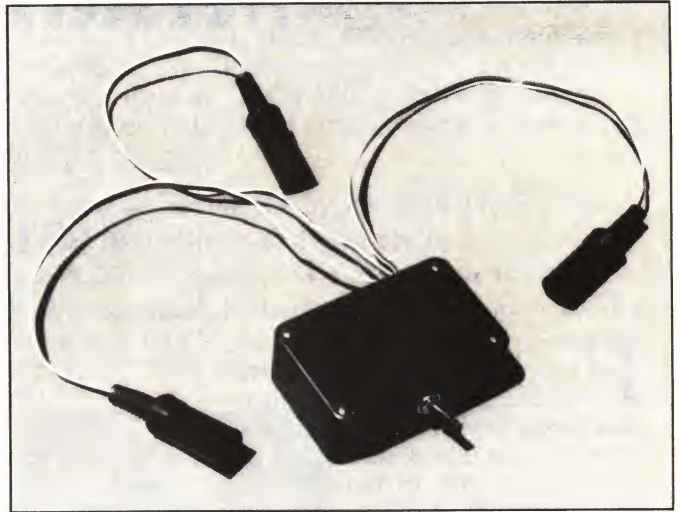


Photo 2. Completed Switch Box

but many other insulating materials work. Just make sure you coat the wire with something to prevent it from shorting out if it happens to touch something else.

Carefully hook and solder the remaining leads to the switch contacts. It is easier if you do the center row first. Make sure you line up the three remaining cable colors in each row across the narrow part of the switch. (See Fig. 1 and Fig. 2.) Identify the ribbon cable that is attached to the center row of contacts on the switch and mark the other end. This is the lead that hooks up to the RS-232 port on the computer. Inspect your work on the switch, and make sure you isolate each contact from its neighbor. This is your last chance to inspect the back of the switch.

Mount the switch in the box, using the previously drilled hole. Tie a knot near the switch in each cable to prevent a strain on the contacts. Pull the free ends of the cables through the holes, ensuring

that the knots keep a small amount of slack inside the box. Make sure you can still identify which cable is attached to the center row of contacts.

Slip the outer shell of each plug or jack over the free end of each cable, and slide it up and out of the way. Look at the back of each plug or jack. The pins are numbered from 1 to 4. On each plug or jack, solder the white lead to pin 1, the black lead to pin 2, the green lead to pin 3, and the red lead to pin 4. You should wire all three plugs and jacks identically. Most important is that the green (ground) lead must be on pin 3. Check your work as you did for the switch. Tie a strain knot in each cable near the end and reassemble the plugs and jacks. Photo 2 shows a completed unit.

Note: If you use Radio Shack cables instead of ribbon cables, the red line is tied to pin three, the white to pin four, the green to pin two, and the yellow to pin one. The red wire is the common

ground; solder the other three to your switch contacts.

Label the jack or plug on the cable you marked as the one connected to the center contacts of the switch so you can later identify it as the one you must connect to the computer.

You have just built an RS-232 switching device! The only thing left to do is to label the switch positions after you hook it up to your computer and peripherals.

#### For the Experienced Builder

Since the switch specified in Table 2 is only a 3PDT, you must ensure that the ground leads from pin 3 of each plug or jack are hard-wired together. The other three leads are the ones controlled by the switch. You could control three or more devices by branching off from one of the cables with another 3PDT switch, or by substituting a multicontact rotary switch in place of the specified one. If you use your old existing RS-232 cables to build this project, make sure the wire colors match pin to pin on each end of every cable. ■

*Address correspondence to Mick McGuire, 2234 George Wythe Road, Orange Park, FL 32073.*

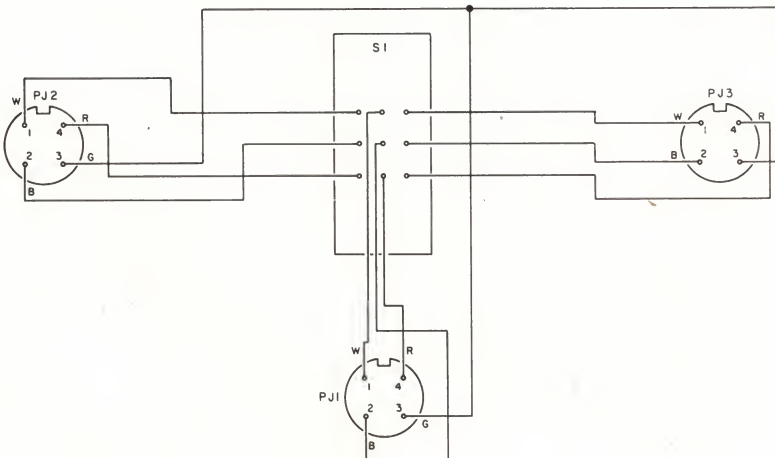


Fig. 1. Assigned Pin Configurations

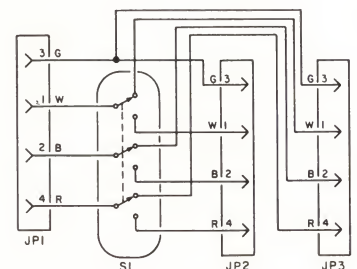


Fig. 2. The RS-232 Switch



# Mindbusters

## VICTORIAN PEGS

by Richard Ramella

Every generation or so a puzzle game engages the public to maniacal proportions. In the early 1980's, it was that paragon of mechanical genius, Rubik's Cube. In the late 1960's, it was Instant Insanity, four multicolored blocks whose solution called for no two adjacent colors.

In late 19th-century England it was a solitaire peg game called the Sixteen Peg Puzzle, and Fore and Aft, among other names. Lately, it has been represented in finely crafted wood versions in toy stores and as a space game in a children's book. This computer

version is named Victorian Pegs.

There are many peg-and-sliding-block games. A common peg-removal game variation is known to some people as golf-tee solitaire, in which you

jump and remove adjacent pegs to end up with just one. Victorian Pegs owes a slight debt to that puzzle, which was the rage of post-revolutionary France. The old game, once known quite grandly as "Solitaire," laid the basis for this new challenge.

You don't remove pieces in Victorian Pegs. Its playing board is made of two diamond-shaped squares that are divided into cells and placed side by side. They share their inside corner cells, which overlap and form one cell. But don't bother imagining it. Type it in and see for yourself.

### System Requirements

16K RAM  
Extended Color Basic

This program is available on our Instant CoCo cassette.  
See the Instant CoCo ad elsewhere in this issue.



### Program Listing. Victorian Pegs

```
100 REM * VICTORIAN PEGS * TRS-8
101 EXTENDED COLOR BASIC 16K *
110 DATA 70,30,45,55,95,55,20,80
111 70,80,45,105,95,105,70,130,170,
112 30,145,55,195,55,170,80,220,80,1
113 45,105,195,105,170,130
120 POKE 65495,0: CLS: PMODE 3,1
121 PCLS1: SCREEN 2,1: CLEAR 250:
122 DIM Z(32): QS=CHR$(32)
130 FOR X=1 TO 32: READ Z(X): Q=
131 Q+Z(X): NEXT X
140 IF Q<>320 THEN PRINT "DATA
141 ENTRY MISTAKE IN LINE 110": END
150 KS(1)=STRING$(7,"E"): KS(7)=
151 KS(1): KS(2)="EXXEEE"
160 KS(3)=KS(2): KS(4)="EXX"+QS+
161 "OOE": ' O IS LETTER O IN OOE
170 KS(5)="EEEEOOE": KS(6)=KS(5)
171 X=0: FOR Y=90 TO 165 STEP 25
172 180 LINE(X,Y)-(X+75,Y-75),PSET:
173 X=X+25: NEXT Y
190 X=0: FOR Y=90 TO 165 STEP 25
191 200 LINE(X+100,Y)-(X+175,Y-75),PSE
192 T: X=X+25: NEXT Y
200 X=0: FOR Y=90 TO 15 STEP -25
201 210 LINE(X,Y)-(X+75,Y+75),PSET: X=
202 X+25: NEXT Y
210 X=0
220 X=0: FOR Y=90 TO 15 STEP -25
221 230 LINE(X+100,Y)-(X+175,Y+75),PSE
222 T: X=X+25: NEXT Y
230 FOR D=1 TO 28 STEP 3: COLOR
231 3,1: LINE(0,90+D)-(74,165+D),PSE
232 T
240 COLOR 2,1: LINE -(125,117+D)
241 ,PSET: COLOR 3,1: LINE-(175,165+
242 D),PSET
250 COLOR 2,1: LINE -(250,90+D),
251 PSET: NEXT D
260 Y=30: FOR X=1 TO 15 STEP 2
261 270 FOR A=Z(X+1) TO Z(X+1)+25
262 280 LINE(Z(X),A)-(Z(X)+7,A-7),PS
```

```
ET: NEXT A,X: COLOR 4,1
290 FOR X=17 TO 31 STEP 2
300 310 FOR A=Z(X+1) TO Z(X+1)+25
310 320 LINE(Z(X),A)-(Z(X)+7,A-7),PS
320 ET: NEXT A,X
320 M=4: N=4: X=120: Y=80
330 LS=INKEY$: IF LS="J" THEN GO
331 SUB 410: LS=""
340 IF LS<>"A" AND LS<>"Z" AND L
341 S<>"S" AND LS<>"X" THEN 330
350 IF LS="X" AND MIDS(K$(M),N,1)=QS: GO
351 SUB 480
360 IF LS="Z" AND MIDS(K$(M),N+1
361 ,1)<>"E" THEN X1=X+25: Y1=Y+25:
362 MIDS(K$(M),N,1)=MIDS(K$(M),N+1,1)
363 ): M=M+1: MIDS(K$(M),N,1)=QS: GO
364 SUB 480
370 IF LS="A" AND MIDS(K$(M+1),N
371 ,1)<>"E" THEN X1=X+25: Y1=Y+25:
372 MIDS(K$(M),N,1)=MIDS(K$(M+1),N,1)
373 ): M=M+1: MIDS(K$(M),N,1)=QS: GO
374 SUB 480
380 IF LS="S" AND MIDS(K$(M),N-1
381 ,1)<>"E" THEN X1=X-25: Y1=Y+25:
382 MIDS(K$(M),N,1)=MIDS(K$(M),N-1,1)
383 ): N=N-1: MIDS(K$(M),N,1)=QS: GO
384 SUB 480
390 GOSUB 530
400 GOTO 330
410 LS=INKEY$: IF LS="J" THEN RE
411 TURN
420 IF LS<>"A" AND LS<>"Z" AND L
421 S<>"S" AND LS<>"X" THEN 410
430 IF M<4 THEN 440 ELSE IF LS="
431 X" AND MIDS(K$(M-2),N,1)<>"E" TH
432 EN X1=X-50: Y1=Y-50: MIDS(K$(M),
433 N,1)=MIDS(K$(M-2),N,1): M=M-2: M
434 IDS(K$(M),N,1)=QS: GOSUB 480: RE
435 TURN
440 IF N>5 THEN 450 ELSE IF LS="
441 Z" AND MIDS(K$(M),N+2,1)<>"E" TH
442 EN X1=X+50: Y1=Y+50: MIDS(K$(M),
443 N,1)=MIDS(K$(M),N+2,1): N=N+2: M
444 IDS(K$(M),N,1)=QS: GOSUB 480: RE
445 TURN
450 IF M>4 GOTO 460 ELSE IF LS="
451 A" AND MIDS(K$(M+2),N,1)<>"E" TH
452 EN X1=X+50: Y1=Y+50: MIDS(K$(M),
453 N,1)=MIDS(K$(M+2),N,1): M=M+2: M
454 IDS(K$(M),N,1)=QS: GOSUB 480: RE
455 TURN
460 IF N<3 THEN 470 ELSE IF LS="
461 S" AND MIDS(K$(M),N-2,1)<>"E" TH
462 EN X1=X-50: Y1=Y+50: MIDS(K$(M),
463 N,1)=MIDS(K$(M),N-2,1): N=N-2: M
464 IDS(K$(M),N,1)=QS: GOSUB 480: RE
465 TURN
470 GOTO 410
480 H=POINT(X1,Y1): FOR V=0 TO
481 25: COLOR H,1
490 490 LINE(X,Y+V)-(X+7,Y+V-7),PSET
491 : COLOR 1,H
500 500 LINE(X1,Y1+V)-(X1+7,Y1+V-7),
501 PSET: NEXT V: X=X1: Y=Y1: ZZ=ZZ+
502 1: PSET(ZZ,0,3)
510 510 IF ZZ/5=INT(ZZ/5) THEN LINE(
511 ZZ,0)-(ZZ,5),PSET
520 520 RETURN
530 530 FOR Q=1 TO 15 STEP 2: IF PPO
531 INT(Z(Q),Z(Q+1))<>8 THEN RETURN
540 540 NEXT Q
550 550 SOUND RND(13)*13,1
560 560 IF INKEY$="" THEN 550 ELSE P
561 RINT "WINNER"ZZ"MOVES"
570 570 IF ZZ>46 THEN PRINT: PRINT "
571 IT CAN BE DONE IN FEWER MOVES."
580 580 POKE 65494,0: END
```

END



# DIGISECTOR<sup>TM</sup> DS-69 VIDEO DIGITIZER FOR THE COCO



## Give your COCO the gift of sight!

The Micro Works is happy to introduce the newest member of our Digisector<sup>TM</sup> family — the DS-69 Video Digitizer for your COCO. It has all the standard features of its big brothers but comes with a price tag that's right for you.

- **High Resolution** 256 by 256 spatial resolution.
- **Precision** 64 levels of grey scale.
- **SPEED!** 1/2 second for a full screen of video.
- **Compactness** Self contained in a plug in Rompack.
- **Ease of Use** Software on disk will get you up and running fast!



The DS-69 Digisector opens up a whole new world for you and your COCO. Your computer can be a security system, take portraits, analyze signatures, inspect assembly work . . .

the DS-69 is your COCO's eyes. Use the DS-69 and a TV camera to get fast, precise conversion of video signals into digital data.

## Powerful C-SEE<sup>TM</sup> software.

C-See is a menu-driven software package included with your DS-69. It provides high speed 5 level digitizing to the screen, high precision 16 level digitizing for superb hard copy printout, and simple software control of brightness and contrast. Or call our driver routines from your own Basic program for easy 64 level random access digitizing. Pictures taken by the DS-69 may be saved on disk by C-See and then edited by our optional MAGIGRAPH package for enhancements and special effects.



The DS-69 comes with a one year warranty. C-See supports both cassette and disk operation with the Multi-Pak adaptor and requires 64K. Cameras and other accessories are available from The Micro Works. Let your COCO see the World!

- DS-69 Digisector & C-See Software \$149.95
- MAGIGRAPH Graphics Package on disk \$ 39.95

Terms: Visa, Mastercard, Check or C.O.D.

**Purveyors of Fine Video Digitizers Since 1977.**

The **MICRO  
WORKS** Established 1977

P.O. Box 1110 Del Mar, CA 92014 (619) 942-2400

Circle Reader Service card #196



## Mindbusters

This listing contains the speed poke, POKE 65495,0, which is "slow-poked" out of existence when you play to the end of the game. If you break into the game, type POKE 65494,0 and press the enter key to return the computer to normal.

Once you have loaded the game, type "RUN" and press the enter key. The computer draws the program's playing field. There are 17 cells in this field. On the left there are eight green pegs; on the right there are eight orange pegs. Color might vary depending on your TV and CoCo. The object of Victorian Pegs is to move all the green pegs into the right diamond and all the orange pegs into the left diamond in as few moves as possible. This is made difficult by the fact that there is never more than one empty cell.

You may move a peg from any direction into the open cell or jump one peg over any other into it. Movement is controlled with the A, Z, S, and X keys. The pegs are in cells that are diamond shaped and do not move north, south, east, and west. Instead, A

*"The real object  
of Victorian Pegs  
is completing  
the game  
in as few moves  
as possible."*

moves a peg northwest, Z moves it southwest, S moves it northeast, and X moves it southeast. Because there is only one empty cell at a time, each direction can apply only to one peg per move. To jump over another peg you press the J key followed by any one of the four direction keys. If you decide not to jump after you have pressed J, you can disable the command by pressing J again.

Experiment with the movement keys until you understand how they work. You will be successful the first time you try Victorian Pegs; the real object of the game is completing it in as few moves as possible. As you play the game, each move you make PSETs a

pixel moving right from the top left corner of the screen. Every fifth move produces a downward line. This gives you an idea of how well you are playing.

When you have reversed the fields of pegs, the program plays a repeating victory song to signify that you have won. Press any but the break and shift keys to access a screen that tells you how many moves it took you to complete the puzzle. If you complete the puzzle in fewer than 80 moves in any beginning attempts, you have a talent for this puzzle. There is a documented set of "fewest moves." I won't tell you how many that is, but the program will tell you if you ever complete the puzzle in fewer than this known minimum number of moves. If you search the listing, you might discover the number.

Next month I adapt some infuriating braincrackers by Sam Loyd—a master puzzle writer. Keep a straitjacket handy. ■

*Address correspondence to Richard Ramella, 1493 Mt. View Ave., Chico, CA 95926.*

# MUL-T-SCREEN



## COLOR CHARACTER GENERATOR

### A NEW DIMENSION IN COLOR COMPUTING



- Now includes a character generator and sample graphic space game at no extra cost.
- Full 224 text and graphic characters. Underline in all PMODES. Prints vertically.
- All machine language, user transparent. Supports all BASIC, EXTENDED BASIC and DISK commands.
- Automatic loader recognizes 16K, 32K & 64K computers.
- Mix up to 5 character sizes in 4 colors all on one screen. A total of 10 sizes available from 8\*4 to 42\*24 or 32\*32 in vertical mode.
- Use up to 4 defineable window screens of any size. Also includes horizontally scrolling (crawling) one line screens.
- Includes positive & negative screen dumps in 2 sizes for R/S, Epson & Gemini printers. ( Please specify )
- Special Trace Delay can be used to debug programs one line at a time ( even graphics ).
- A special printer control can output characters to the screen & printer simultaneously.
- A must for all color computer owners. Once you try it you won't write another program without it.

## INCENTIVE SOFTWARE

### (519) 681-0133

Circle Reader Service card #91

P.O. BOX 323  
STATION B  
LONDON ONTARIO  
CANADA N6A 4W1

P.O. BOX 7281  
PORT HURON  
MICHIGAN 48301  
U.S.A.

MINIMUM REQUIREMENT 16K BASIC  
TAPE - 24.95 US or 29.95 CDN  
DISK - 27.95 US or 32.95 CDN



Tape to Disk upgrade available for \$8US or \$10CDN. We pay postage within US & CANADA on orders over \$20, otherwise please add \$1. Other countries please add \$2. Charge orders please add \$1.



# Reader's Forum

## Shorter Programs

Here are some hints on how to shorten a program. Take the following program that draws a star on the screen:

```
10 PMODE4,1:PCLS:SCREEN1,1
20 LINE(127,11)-(183,182),PSET
30 LINE(183,182)-(36,76),PSET
40 LINE(36,76)-(217,76),PSET
50 LINE(217,76)-(71,182),PSET
60 LINE(71,182)-(127,11),PSET
70 GOTO 70
```

You can shorten it since each line starts where the last left off:

```
30 LINE-(36,76),PSET
40 LINE-(217,76),PSET
50 LINE-(71,182),PSET
60 LINE-(127,11),PSET
```

You can shorten it further with the M option of the DRAW command. The Extended Color Basic manual mentions that using M without the B prefix will result in unwanted lines on the screen. By using those unwanted lines, you can shorten the program to:

```
10 PMODE4,1:PCLS:SCREEN1,1
20 DRAW"BM127,11;M183,182;M36,76;M217,76;
M71,182;M127,11;"
```

Del 30-60  
70 GOTO 70

You can also use the M command alone in relative addressing to easily create lines in angles other than 45-degree increments in a relocatable picture.

*Dan Redding  
Gibson City, IL*

## Easy Setup

The Radio Shack DMP-200 printer is a machine of amazing ability, but setting it up for any particular job is a pain in the neck.

The CoCo's ROM doesn't help any. Using the CoCo with a printer is enough to make you swear. LPRINT CHR\$(27); CHR\$(19), etc. is bad enough, however necessary, but PRINT#-2, CHR\$ is cruel and unusual punishment.

Program Listing 1 should ease your setup worries. While it is written for the DMP-200, you can use it with any similar printer by changing values in the CHR\$ lines. It is handy to put onto a word-processing disk to set up the DMP-200 before engaging your DOS or driver.

*J. Frederick Toon  
Lebanon, CT*

*Continued on p. 67*

## This Publication is available in Microform.



**University Microfilms  
International**

Please send additional information

for \_\_\_\_\_  
Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, MI 48106

Circle Reader Service card #60



**COLOR TREK** — Blast Klingons and save the Federation in this game of both skill and strategy. Includes an instructions program and ten levels of difficulty. Requires 16K of memory.

Cassette \$7.95

**ADVANCED D&D NON-PLAYER CHARACTER MAKER** — Takes into account spells, weapons, hit points, level, class, gender, race, alignment, constitution bonus, racial adjustments, and minimum requirements. Whew! A must for all dice weary DM's. Requires 16K of memory.

Cassette \$14.95

### ARE YOU BORED WITH YOUR 4K COLOR COMPUTER?

**COLOR ALEPH PROGRAM PACKAGE** — Includes COLOR CYCLES, COLOR BLACKOUT, and COLOR MAZE. Each is progressively difficult and requires only 4K of memory.

Cassette \$11.95

**COLOR CYCLES** — Play chicken against motorcycles of light with up to seven enemies at one time. Written in machine language.

Cassette \$4.95

**COLOR BLACKOUT** — Armed with only a tennis racket and five balls, you must knock out the colored bars piece by piece. Joysticks are required.

Cassette \$4.95

**COLOR MAZE** — Run for your life through a twisty maze. All the while, an angry ghost is chasing at your heels throwing paralysis rays. Be wary of the medlesome programming wizard who rearranges the maze around you. Includes machine language subroutines.

Cassette \$4.95

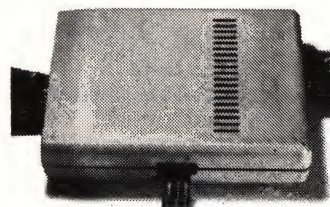


Aleph Unlimited  
P. O. Box 8007  
Stockton, California 95204

Circle Reader Service card #536

## ATM-80

**DATA ACQUISITION & CONTROL SYSTEM  
FOR THE COLOR COMPUTER**



### APPLICATIONS:

• ENERGY MANAGEMENT • PROCESS CONTROL • SCIENTIFIC EXPERIMENTS • ROBOTICS • TECHNICAL EDUCATION • SECURITY SYSTEMS

### FEATURES:

• 20us 8-BIT A-TO-D CONVERTER • 32-CHANNEL ANALOG MULTIPLEXER • PROGRAMMABLE GAIN AMPLIFIER • PEAK DETECTOR AMPLIFIER • 8-BIT D-TO-A CONVERTER • 4-BIT I/O PORT (PROGRAMMABLE) • 2K RAM • CONTROL SOFTWARE IN ROM • USER'S MANUAL

ASSEMBLED & TESTED ..... \$184.95  
MANUAL ..... \$ 15.00

### CLOCK/CAL/MEM CARTRIDGE

### FEATURES:

• COUNTS HOURS, MIN, SEC, MONTH, DATE, DAY OF WEEK, YEAR, LEAP YEAR • PROGRAMMABLE INTERRUPT TIMER (5, 5.0 AND 60 SECOND INTERVALS) • ROM BASED CONTROL SOFTWARE • 8K RAM SPACE • CLOCK BACKUP BATTERY  
ASSEMBLED & TESTED ..... \$ 89.95  
W/8K RAM ..... \$119.95

For more information, call or write to:

CYBERTRON TECHNOLOGY  
3131 TIMMONS #723  
HOUSTON, TEXAS 77027  
(713) 840-1272



# CoCo for Hire

Last month was the first of a two-part look at starting and running a mailing-list service with your Color Computer. In case you have forgotten, there are two kinds of mailing-list services: renting a mailing-list that you build and refine, and maintaining mailing lists for groups and organizations. This month we conclude the discussion by looking at equipment, software, rates, and advertising.

## Hardware and Software

To start a mailing-list service, you need a computer, disk drive, printer, and mailing-list program. Your Color Computer can have 16 or 64K RAM. But it must have a comfortable keyboard because you'll be doing a great deal of typing on it; fatigue is a problem you should consider. Replace your CoCo's keyboard if you can't type fast enough with it. The new keyboard will be worth the investment.

Cassette operation is too slow to be practical for a mailing list. When your list approaches several thousand names and addresses, you'll spend more time loading names from the cassette than printing them on labels.

If you're thinking of upgrading—buying drive 0 or additional drives—consider purchasing a hard-disk system instead. Although the hard disk is much more expensive than a standard drive at the outset, the actual cost per storage byte is cheaper by a factor of 10, and you don't have to worry about disk swapping. A 5-megabyte hard disk can hold about 39,000 names and addresses (with industry-standard 128-byte records). A cassette-based computer

## MAILING-LIST BUSINESSES— PART II

*by Terry Kepner  
and Linda Tiernan*

with a hard disk cannot back up your data unless you write a short Basic program to copy data from disk to cassette.

The printer you use for your mailing-list service should tractor or pin feed its paper, have easy-to-read type, and be able to take 13-inch paper and three carbon copies (the thickness of labels).

There are two kinds of mailing-list software: sequential and random access. Sequentially ordered software is often designed for holding in-memory names and addresses. With this kind of software, the entire list is loaded into memory as a unit. Short names and addresses yield space for more listings. This kind of software is best suited to short lists that you don't intend to mix as a master list.

Random-access mailing-list software is available only for disk systems. It stores names and addresses in a specified format. Its listings use equal amounts of space; random-access programs allow no variations. The limit to total space is the amount of space on your disk drive. Hard-disk drives provide the most storage space you can get without a lot of disk swapping during printing.

You don't have to have software

that is designed strictly as a mailing-list program. You can also use a database program that has the ability to print address labels and sort by two categories: alphabet and zip code. You should be able to supply zip-code-order labels, alphabetical-order labels, and paper printout (each name and address on one line). The paper printout makes it easier to locate label errors and runs of categories. Your software should support nine-digit zip codes and name-and-address lines that are long enough to avoid constant abbreviating. It should provide enough room for 500 to 1,000 listings.

If you decide you want to service both kinds of mailing-list markets, make sure your mailing-list program offers several selection codes, which allow you to combine several organizations into one list (reducing the number of disks you must manipulate) and select each organization's list by the codes. Selection codes also make it easier to target a particular customer's needs. They can differentiate between addressees based, for example, on the following criteria: gender, age groups, income levels, and home renters or owners. You want a program that offers a large number of selection codes.

## List Charges

Mailing lists are usually sold in blocks or percentages of a thousand. The price varies from \$70 to \$100 per thousand (abbreviated as \$70/M), depending on the quality of the list and the average response rate. Add about \$10/M for pressure-sensitive labels. If the competition in your area is stiff,



## CoCo for Hire

consider not charging for labels or discounting the fee per thousand.

When you are supplying a service to an organization, charge a flat, hourly rate for the operation of your printer and the time you spend updating and maintaining the list. Bill for paper and label costs, too. A flat rate of \$10 to \$15 per printing hour plus label costs should cover everything. Charge minimum wage per hour for typing in the list for the first time.

Your rate should reflect the maintenance and running costs of your system, plus the cost of replacing your printer. To figure this cost per hour, divide the amount of working hours you expect your printer to last into its replacement cost. For example, if your printer costs \$800 and you figure it will last for about one year of 40-hour weeks (2,080 hours), you should charge an additional 38 cents for each printing hour.

Mailing lists are never sold permanently—they are rented. Customers pay a rental fee for each time they use your list. Include "dummy" names and addresses in your list that will send mailings to a post-office box or address that you can monitor. The fake listings help you police the use of your list. They also let you know when customers have used your list so you can bill them.

Most mailing-list businesses bill on a 30-day basis. For list rentals, wait until you receive a "dummy" item from a customer before sending your bill. Charge organizations for which you maintain lists after you have delivered. Keep accurate records for each customer. If 30 days pass and you have not received payment, send another bill.

### For New Customers

Don't rent your entire list to a new customer, especially if your list is large. Most new customers want to rent only 5 or 10,000 names to evaluate your list's response rate. Here is a technique that helps you to be sure you won't duplicate listings when a customer returns for more names—even a year later.

Keep records of how many names begin with each letter of the alphabet in your list. When, for example, a client asks for 10,000 names, choose a group or a combination of letter groups that equals that many names. Make up note cards for your customers that detail the names and dates you deliver. When new customers return, pull their cards to find

out which sections of your list they have already mailed.

### Advertising

As has been noted in this column previously, the best advertising is by word of mouth—from satisfied client to potential customer. One method for gaining customers is approaching mailing services and telling them about your new business; they may be able to suggest names of companies that might want your list. Don't forget to keep an eye on your own mail. Get in touch with competitors of direct-mail advertisers that contribute to your mail. Suggest that they try a similar ad campaign with your mailing list.

Once you build up a large list and establish yourself in the mailing-list market, you might discover that you need a mail-list broker to handle your business. A mail-list broker is the middleman between your business and new clients. His job is finding businesses that want to advertise by mail and matching them with mailing-list businesses that can provide the right kind of list. Brokers earn their pay by taking a percentage of your normal charge per thousand. They also handle billing of clients. You'll find mail-list brokers listed in the yellow pages; ask other mailing-list businesses about them.

Next month we'll cover another profitable home business—collating group-buy orders for organizations such as food cooperatives and club groups. ■

*Eds. note—If you are interested in starting up your own mailing-list service, you can get more information from a biweekly newsletter devoted to this industry: Micro List Marketing Report, published by Campbell Communications, 145 Grove Street, Peterborough, NH 03458. And look for a comparative review of mailing-list software by the author in an upcoming issue of HOT CoCo.*

*Address correspondence to Terry Kepner, P.O. Box 481, Peterborough, NH 03458. Terry Kepner is a free-lance writer and programmer. He also writes monthly columns for 80 Micro, Pico, Portable 100, and Under Color. He has been writing about computers since 1979. Linda Tiernan is a librarian with a master's degree in bio-medical research. She has worked with computers since 1980.*

Circle Reader Service card #337

## DOUBLES DISK CAPACITY!



### Cuts Your Cost 50%!

Now! The back of 5 1/4" diskettes can be used for data storage even with single head disk drives.

- **NIBBLE NOTCH** makes it easy
- Adds the notch needed.
- SATISFACTION OR MONEY BACK.

### NIBBLE NOTCH II

Cuts square notch and 1/4" inch round "index hole." For use with TRS 80 I & III, Osborne, Kaypro, IBM and others needing an "index hole."

only **\$21.90** each\*  
\*add \$2.00 each order P&H  
(\$5.00 each foreign P&H)

Florida Residents Add 5% Sales Tax

### ORDER TODAY!

Toll Free 1-800-642-2536

FLORIDA: 1-305-493-8355

OR SEND CHECK OR MONEY ORDER TO:

**NIBBLE NOTCH® COMPUTER PRODUCTS**

4211 NW 75th TERRACE, • DEPT. 1 5

LAUDERHILL, FL 33319

PATENTED

ALL TRADEMARKS ARE ACKNOWLEDGED

## Subscription Problem?

Hot CoCo does not keep subscription records on the premises, therefore calling us only adds time and doesn't solve the problem.

Please send a description of the problem and your most recent address label to:

**HOT CoCo**

Subscription Dept.

PO Box 975

Farmingdale, NY 11737

Thank you and enjoy your subscription

## BACK ISSUES

**HOT CoCo** back issues are \$3.50 each with a \$1.00 shipping fee per issue.

For 10 or more issues add \$7.50 per order for shipping.

Send your order and payment to:

**HOT CoCo**

Back Issue Order Department

80 Pine Street

Peterborough, NH 03458



# OUR HOTTEST IDEA YET

## A FREE PROGRAM WITH EVERY CASSETTE

We want to give you something that **HOT CoCo** can't. That's right! **instant CoCo** will now include a previously unpublished BONUS PROGRAM on each monthly cassette . . . **FREE**.

The NEW AND IMPROVED **instant CoCo**. More than just another magazine loader. Each free program is our way of making sure you get state-of-the-art software.

You'll find variety and excitement every month. Everything from great games to helpful utilities. Commercial quality programs that would cost up to \$50 if purchased separately in any leading software store.

Since the bonus programs have never appeared in **HOT CoCo** due to their length, all necessary documentation will be specially provided with each cassette.

Save yourself some money. Subscribe to **instant CoCo**. Each month you'll get **8-12** of the best ready-to-run programs from the pages of **HOT CoCo**:

- **The best** action-packed games . . . hours of challenge and entertainment.
- **The best** business, school, home, and hobby programs.
- **The best** utilities . . . ease routine tasks . . . increase your computer's capabilities.

Increase your software library. Order a full 12 month subscription and we'll give you one FREE program on each monthly cassette.

Simply mail in the coupon below, or call TOLL FREE 1-800-258-5473. In New Hampshire, call 1-924-9471. VISA, MASTERCARD, and AMERICAN EXPRESS welcome.

With the new **instant CoCo**, we'll deal you the **BEST** programs—plus a great deal more!

### YES! I want a FREE program with every cassette.

- ☐ Please sign me up for a one year subscription beginning with this month's issue at \$99.97.
- ☐ Please send me \_\_\_\_\_ copies of this month's issue at \$11.47 each.
- ☐ Please send me \_\_\_\_\_ copies of the "Best of 84" at \$16.47 each.

\* Price includes postage and handling. Foreign Air Mail please add an additional 45¢ per cassette or \$25 per subscription. US funds drawn on US banks ONLY.

- ☐ Check Enclosed   ☐ MC  
☐ VISA   ☐ AE

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_  
Signature \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**Please allow 4-6 weeks for delivery.**

**instant CoCo • 80 Pine Street • Peterborough, NH 03458**



IC8504



# 6809 On Line

I'm thrilled that this issue of *HOT CoCo* features telecommunicating with your Color Computer. I'll make my contribution with advice on how to reduce connect costs. By answering a few key questions concerning your own needs, I'll show you ways to get the most from your connect charges.

Connect charges have three basic forms, giving you three areas in which to save money. All three are interrelated, forcing you to make trade-offs. The categories are utility costs, local phone costs, and long-distance phone costs.

## Utility Costs

Utility costs usually are the most expensive. By utility, I mean those services charging fees for connect time, including The Source, CompuServe, Dow Jones News/Retrieval, and many others I've discussed in previous columns. With over 200 utilities now in business, sorting out the best prices and conditions is complicated. Some general guidelines apply, though.

The best way to save on the expensive, specialized utilities is to not call them at all. Ask yourself if you really need the information these companies provide. The initiation fees and monthly minimums charged by these services can amount to the price of several new CoCos. I stick to the general-interest services, such as CompuServe and The Source, and two ways to save money come to mind.

Data-transmission speed and time on line determine the charges for most information utilities. The transmission speed is measured in terms of baud, and the two most common rates are 300 and 1,200 baud. Charges are almost always higher for 1,200-baud,

but the faster rate can save you money depending on how you use the utilities.

On-line time charges reflect the time of day called and how long you are connected. Almost all utilities charge more for use during peak business hours, so make your calls during off hours. It's with the searching for and downloading of information that a 1,200-baud rate can save you more money, but there are trade-offs.

If you know what you want and how to get it fast before you call, 1,200-baud operation will save you time and money. However, browsing through a database at 1,200 baud can be very expensive, especially if the utility does not support an advanced mode that lets you avoid unnecessary menus and help screens.

Another trade-off involves your local phone company. Some phone companies charge extra for "data" lines. While most voice lines will support 300-baud operation as data lines, some will not handle 1,200 baud. The phone company will charge you to install higher-quality lines for high-speed data transmission. These charges are monthly, and you must determine their worth for yourself.

Calling at night and on weekends will save you the most money. Most services are not only cheaper at night, but quicker to access due to lower demands on the system.

## REDUCING CONNECT COSTS

*by Bobby Ballard*

## Local Phone Costs

Reducing your local phone costs involves careful examination of your bill and the services you are receiving. In many areas you will run up a local bill for connect time even when calling free utilities and BBSes (bulletin board systems). When you signed up for your local phone service, you probably didn't have a modem, or a computer for that matter. Both could significantly change your calling habits, and now is the time to consider changing your local phone service.

First, check out the cost of changing. Some companies charge up to \$25 to change services. You must consider all the costs before you'll know if a service switch will save you money.

Many of you will have choices that are quite varied, including a flat rate with unlimited use to time and distance charges (measured usage) within large cities. In some areas, only the flat rate is available, though it looks like local phone companies are moving toward a measured usage policy.

The best advice is arm yourself with knowledge. The more you know about the available services and your needs, the better the deal you'll get. For example, if you use Tymnet or Telenet to access utilities (and you should), make sure you are using the number nearest to your exchange, ensuring the lowest local cost.

See if your phone company charges for high-speed data lines before spending money on the equipment. You might also want to consider, though, that you might have to upgrade to accommodate 1,200-baud or higher transmission when it becomes common (and it will).



## Long-Distance Costs

With 1,200-baud capability, long-distance savings add up fast. "Time is of the essence" could not be more true with long-distance rates. If you call scores of long-distance BBSes, a 1,200/300-baud modem is almost a necessity to maximize your costs and efficiency. The higher rate saves time and money, and the lower rate lets you access BBSes that support 300-baud operation only.

Check out the alternative long-distance companies that offer options such as volume calling discounts. There are almost 30 companies offering long-distance service in the U.S. Space is too limited to discuss them all. When equal access comes to your neighborhood, these companies will have the same great connections that AT&T enjoys today.

Speaking of AT&T, look into their Reach Out America program. This new service lets you place calls between 11 p.m. and 8 a.m. for less than \$10 an hour. The first hour costs \$10 and each

*"Arm yourself  
with knowledge.  
The more you know  
about the available  
services and  
your needs,  
the better deal  
you'll get."*

subsequent hour \$8.75. For another \$1.50 a month, you receive an additional 15 percent off reduced-rate calls placed on AT&T lines between 5 and 11 p.m. The flat long-distance rates are also in effect all day Saturdays and all day Sundays except from 5 to 11 p.m. To find out more about Reach Out America, call 1-800-551-3131.

To help you make a more accurate comparison of long-distance companies, Washington Consumers' Checkbook publishes *The Complete Guide to Lower Phone Costs*, for \$6.95 including shipping. This 72-page publication includes graphs, charts, worksheets, and helpful hints covering all aspects of telephone usage. One chapter explains how to do your own installments or go modular. To order or find out more, write Washington Consumers' Checkbook, Lower Phone Costs, 806 15th St. NW, Suite 925, Washington, DC 20005. Make your check payable to The Center for the Study of Services.

I'll discuss the details of some of the more popular services in the near future. I am currently enrolled with GTE Sprint, MCI, AllNet, and Reach Out America. If you have any comments or suggestions, write me and I'll share them with everyone. ■

*Address correspondence to Bobby Ballard, 1207 Eighth Ave. 4R, Brooklyn, NY 11215.*

# WHITE HOUSE COMPUTER

Ask About Phone Rebates!

1-717-322-7700

P.O. BOX 4025 WILLIAMSPORT, PA 17701

## DISK DRIVES

**ATARI**  
Indus GT ..... \$259.00  
1050 ..... \$169.95

**COMMODORE**  
Indus GT ..... \$255.00  
1541 ..... \$235.00

**MSD DRIVES**  
Single MSD 1 ..... \$309.00  
Dual MSD 2 ..... \$485.00

**BLUE CHIP**  
100% Compatible  
C-64 Disk Drive  
Double Density ..... \$225.00

## DISKETTES

**SKC**  
SS/DD ..... \$11.95  
SS/DD ..... \$14.95  
DS/DD ..... \$16.95

**MAXWELL**  
MD-1 ..... \$18.95  
MD-2 ..... \$23.95

**ELEPHANT**  
SS/SD ..... \$14.95  
SS/DD ..... \$16.95  
DS/DD ..... \$21.95

## INNOVATIVE CONCEPTS

Flip-N-File ..... (10) \$3.50  
Flip-N-File ..... (15) \$8.50  
Flip-N-File ..... (25) \$18.50  
w/lock  
Flip-N-File ..... (50) \$17.50  
Flip-N-File ..... (50) \$23.50  
w/lock  
Flip-N-File ..... \$17.50  
ROM Holder

## WICO

Bat Handler Joy Stick ..... \$16.95  
3-Way Deluxe ..... \$21.95  
Boss ..... \$13.95

## SOFTWARE BRODERBUND "ATARI"

Print Shop ..... \$31.95  
Bank Street Writer ..... \$39.95  
Spelunker ..... \$21.75  
Stealth ..... \$21.75  
Loderunner ..... \$22.95

## "C-64"

Print Shop ..... \$31.95  
Bank Street Writer ..... \$37.95  
Spelunker ..... \$21.75  
Stealth ..... \$21.75  
Loderunner ..... \$22.95

## BATTERIES INCLUDED

Paper Clip ..... \$69.95  
w/Spell Pk. .... \$59.00  
Paper Slip ..... \$32.95  
Home Pack ..... \$137.95  
Bus Card ..... \$137.95  
BI 80 Board ..... \$137.95

## INTERFACES

MPP 1150 ..... \$64.75  
Uprint N Port ..... \$59.00  
Apple Dumping GX ..... \$65.00  
MPP 1152 Buffer Kit ..... \$19.75  
Microprint Economy Printer  
Interface ..... \$49.95  
Atari 850 ..... \$115.75  
Cardco B ..... \$35.95  
Cardco G ..... \$59.95  
Micro Stuffer 64K Printer  
Buffer ..... \$105.00  
Micromar 64K Expansion  
for Atari 600 XL ..... \$89.00

## COMPUTERS

Atari 800 XL ..... \$119.00  
Commodore C-64 ..... \$159.00  
SX-64 ..... \$539.00

## PRINTER PAPER

Lazoredge "500" ..... \$11.75

## ★ PRINTER RIBBONS ★ DUST COVERS

## PRINTERS

★ HIGH LITED  
PRINTERS  
PANASONIC

1091 ..... \$265.00  
1090 ..... \$209.00  
1092 ..... \$415.00  
1093 ..... \$650.00  
3151 LQ ..... \$490.00

## STAR MICRONICS

10X ..... \$225.00  
15X ..... \$340.00  
Delta 10 ..... \$335.00  
Delta 15 ..... \$445.00  
Radix 10 ..... \$495.00  
Radix 15 ..... \$585.00  
Powertype ..... \$309.00

## LEGEND

880 ..... \$220.00  
1080 ..... \$240.00  
1200 ..... \$250.00

## ATARI

1020 ..... \$59.00  
1025 ..... \$189.00  
1027 ..... \$239.00

## COMMODORE

1526 ..... \$259.00

## CARDCO

LQ 1 ..... \$435.00  
LQ 3 ..... \$309.00

## OKIDATA

Okidata 92 ..... \$349.95  
Image Writer ..... \$425.00  
Okimate 10 ..... \$179.95

## JUKI

6100 ..... \$379.00

## CITOH

8510 ..... \$285.00

## BLUE CHIP

M12010 C-64 ..... \$259.00

## MONITORS GORILLA

Green ..... \$78.95  
Amber ..... \$84.95

## ZENITH

122 ..... \$85.95  
123 ..... \$75.95

## AMDEK

300 Green ..... \$135.00  
300 Amber ..... \$145.00  
Color 300 ..... \$250.00

## X TRON

Comcolor 1 14" Composite &  
Separate Video ..... \$215.00  
AA 12X Apple Amber  
and Swivel Base ..... \$99.00  
AG 12X Apple Green ..... \$95.00  
IG 12X  
I.B.M. Green ..... \$110.00  
IA 12X  
I.B.M. Amber ..... \$120.00  
1702 Commodore ..... \$239.00

## TEKNIKA

MJ-10 Composite and  
separate video ..... \$235.00  
MJ-22 R.G.G. Composite and  
separate video ..... \$289.00

## KOALA

## "ATARI" & "C-64"

Koala Pads ..... \$49.95

## MODEMS

Mighty Mo  
with Software ..... \$79.95  
Tele Communications ..... \$69.95  
Westridge ..... \$79.95  
Hayes 300 ..... \$199.00  
Hayes 1200 ..... \$469.00  
MPP1000C ..... \$99.75  
Apple Cat II ..... \$265.00  
Compuserve ..... \$24.50

## WE CARRY A FULL LINE

OF: Batteries Inc., Broderbund, Contineal, Hess, Infocom, Innovative Concepts, Koala, LJK, Microbits, Micropose, Microtek, O.S.S., Professional S.W., Scarborough, S.S.I., Synapse, Time Works, Wico - For the ATARI, APPLE & C-64

**POLICY:** No deposit on COD orders. FREE freight on all prepaid cash orders over \$300.00 in the continental U.S. APO & FPO add \$5.00 per hundred. For priority mail add \$8.00 per hundred. PA Residents add 6% sales tax. Defective products must have Prior RA number. Schools net 15.

"IF YOU WANT IT-

WE HAVE IT AT THE LOWEST POSSIBLE PRICES"

★ Dealers Inquiries Invited ★

HOURS: Monday thru Friday - 9:00 am till 6:00 pm - Saturday 9:00 am till 3:00 pm EST - VISA and MC Accepted 4% -





Continued from p. 61

## Program Listing 1. DMP-200 Setup Routine

```

70 CLS:PRINT"      DMP-200 PRINT
R DRIVER":PRINT
80 TEST$="AaBbCcDdEeFfGgHhIiJjKk
LlMmNnOoPpQqRrSsTtUuVvWwXxYyZz12
3456789!#$%&'()*=-@_[];:~.,/<?>"
90 PRINT"DO YOU WANT DATA PROCES
SING MODE OR THE WORD PROCESSING
MODE?"
100 AS=INKEY$:IF AS$=""THEN100
110 IF AS$="D"THEN350
120 IF AS$="W"THEN360
130 GOTO100
140 PRINT:PRINT"      STANDARD, COR
RESPONDENCE, OR      PROPORTIONA
L FONT STYLE?"
150 BS=INKEY$:IF BS$="" THEN150
160 IF BS$="S"THEN370
170 IF BS$="C"THEN380
180 IF BS$="P"THEN390
190 GOTO150
200 PRINT:PRINT"SELECT PITCH WI
DTH:":PRINT" 1: NORMAL (10 CPI
)":PRINT" 2: COMPRESSED (12 CP
I)":PRINT" 3: CONDENSED (16.7
CPI)"
210 CS=INKEY$:IF CS$=""THEN210
220 IF CS$="1"THEN400
230 IF CS$="2"THEN410
240 IF CS$="3"THEN420
250 GOTO210
260 PRINT:PRINT@486,"HIT ANY KEY
TO
GO ON";
270 XS=INKEY$:IF XS$=""THEN270
280 CLS:PRINT"READY PRINTER"
290 PRINT"REQUEST TEST FUNCTION?"
300 DS=INKEY$:IF DS$=""THEN300
310 IF DS$="Y"THEN GOTO430
320 IF DS$="N"THEN340
330 GOTO300
340 END
350 PRINT#-2,CHR$(19):PRINT">DA
TA PROCESSING MODE SELECTED":GOT
O140
360 PRINT#-2,CHR$(20):PRINT">WO
RD PROCESSING MODE SELECTED":GOT
O140
370 PRINT#-2,CHR$(27):CHR$(19):P
RINT">NORMAL FONT SELECTED":GOT
O200
380 PRINT#-2,CHR$(27):CHR$(18):P
RINT">CORRESPONDENCE FONT SE
LECTED":GOTO260
390 PRINT#-2,CHR$(27):CHR$(17):P
RINT">PROPORTIONAL FONT SELECTE
D":GOTO260
400 PRINT#-2,CHR$(27):CHR$(19):P
RINT">NORMAL 10 PITCH":GOTO260
410 PRINT#-2,CHR$(27):CHR$(23):P
RINT">COMPRESSED 12 PITCH":GOTO
260
420 PRINT#-2,CHR$(27):CHR$(20):P
RINT">CONDENSED 16.7 PITCH":GOT
O260
430 PRINT#-2,TEST$:PRINT#-2,"SE
LECTED OPTIONS ARE: "AS$,"BS$,"C
S$
440 PRINT"CHANGE OPTIONS?"
450 ES=INKEY$:IF ES$=""THEN450
460 IF ES$="Y"THEN70
470 IF ES$="N"THEN340
    
```

END

Continued on p. 79

Circle Reader Service card #236

## FREE 10 DISKETTES OR 20 C-20 CASSETTES

A subscription to the 'Coco-Cassette' gets you a tape or disk full of 10 **quality programs** delivered to you by first class mail every month. The documentation included will help you run great **utilities** like 'Word Processor,' and 'Budget Analyzer,' or enjoy great **games** like 'Frogjump' and 'Caterpillar Cave' **FOR AS LITTLE AS 46 CENTS EACH!**

★ **Limited offer** ★ Subscribe for a year on cassette and receive **20 Free C-20 cassettes** or subscribe for a year on disk and receive **10 Free 5¼ single sided double density diskettes!**



Now available on disk!

### PRICES

	TAPE DISK	
1 YR (12 ISSUES)	55 <sup>00</sup>	70 <sup>00</sup>
6 MO (6 ISSUES)	30 <sup>00</sup>	40 <sup>00</sup>
Single Copies	6 <sup>00</sup>	8 <sup>00</sup>

- ★ 16K extended required
- ★ Some programs require 32K, and/or disk
- ★ Over 3000 satisfied customers
- ★ Back issues available from July '82 **PERSONAL CHECKS WELCOME!** (over 280 programs to choose from!)
- ★ Also available for Commodore 64.

Mich. Res. add 4%  
Overseas ADD \$10 to subscription  
and \$1.00 to single issues.

T & D Subscription Software  
P.O. BOX 256-C  
HOLLAND, MI 49423  
(616) 396-7577



Can't get past the snake?  
Can't find the treasure room?  
Are you still lost in:



## THE SANDS OF EGYPT

The clues to solve these problems are contained in *Percy's Diary*.

Adventurers can still solve the games on their own, but the clues are in *Percy's Diary* if you need them.

How to make reliable adventure maps.

Help when you need it—*Encrypted clue sheets*.

Percy's own solution in less than 85 moves, (sealed separately). **BEAT THAT!**

Help is on the way. Send check or money order with a self-addressed, stamped envelope to:

J.B. Carvaly

Box 165

Corona, CA 91720

(714-735-6405)

Circle 328 on Reader Service card.

First 100 orders...\$3.95 (reg. \$4.95) \*Trade-mark of Tandy Corp. & Datasoft Corp.



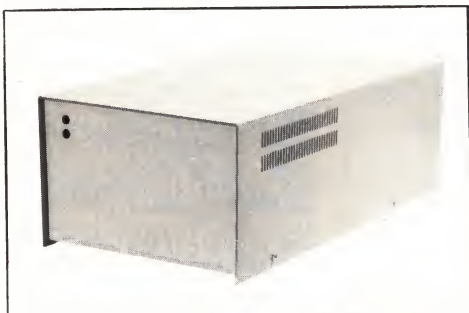


Price Changes  
Occur On A  
Daily Basis.  
Please Call  
1-800-343-8841

# PRICE BREAKTHROUGH

Price Changes  
Occur On A  
Daily Basis.  
Please Call  
1-800-343-8841

## Super Sale on New Hard Drives



Introducing

### MEGADISK™

Winchester Hard Drive ready to  
run on the TRS 80 Model I/III/IV/4P,  
Color Computer, I.B.M.-PC, Apple,  
Franklin, Max/80.

Software Drivers: LDOS, NewDos/80,  
Dosplus, TRSDOS 6.0, CP/M

CALL FOR NEW LOW PRICE

**Warranty - One Full Year**

**DRIVE A HARD BARGAIN™** Complete systems starting at \$699.95  
**Call Toll Free Ordering 1-800-343-8841**



High Quality Lowest Price

**Drive 0, 1, 2, 3**

for the

**Color Computer**

Starting at ~~\$199.95~~ CALL FOR NEW LOW PRICE



**Disk Drive Upgrade**

for Model III/IV easy to install system

Starting at ~~\$309.95~~ CALL FOR NEW LOW PRICE

## SOFTWARE SUPPORT, INC.

1 Edgell Road, Framingham, MA 01701 (617) 872-9090 Telex-383425

Hours: Mon. thru Fri. 9:30 am to 5:30 pm (E.S.T.) Sat. 10:00 am to 3:30 pm

### DEALER INQUIRIES INVITED.

#### TERMS:

M.C./Visa/Amex and personal

checks accepted at no extra charge.

C.O.D., please add \$3.00.

Shipping: Please call for amount.

Not responsible for typographical errors.

Prices subject to change.

#### CANADA

**MICRO R.G.S. INC.**

751, CARRE VICTORIA, SUITE 403

MONTREAL, QUEBEC, CANADA. H2Y 2J3

Regular Tel. (514) 287-1563

Canadian Toll Free 800-361-5155

### Service! Service!

All in stock products are shipped  
within 24 hours of order.

Repair/Warranty service is performed

within 24 hours of receipt unless

otherwise noted. We accept C.O.D.,

foreign and APO orders. School

and D&B corporate P.O.s accepted.

IBM-PC Registered IBM Corp.  
LDOS Reg. Logical System Inc.

TRS/80 Registered Trademark Tandy Corp.  
Franklin Registered Trademark Franklin Corp.  
Dosplus - Micro Systems Software

Apple Registered Trademark Apple Computer Corp  
Max/80 Registered Trademark Lobo Int.  
Newdos/80 - Apparat Inc.



**Prices Change  
Every Day.  
Please Call  
1-800-343-8841  
For Lower Prices.**



**Prices Change  
Every Day.  
Please Call  
1-800-343-8841  
For Lower Prices.**

**DEALER INQUIRIES INVITED**

**MEGADISK™ HARD DISK DRIVE SYSTEMS**

**TOLL FREE ORDERING 1-800-343-8841**

For the { IBM/PC, Tandy 1000, TRS/80 Models I/III/IV/4P, Compaq, Eagle, Sanyo,  
Tava, PC Workalikes, Color Computers, Apple/Franklin, Heath/Zenith, Max/80  
Complete with Hardware, Cables, Software and Quikfit Installation

5 Megabytes Internal Mount (IBM Special)	starting at \$ 399.95
10 Megabytes Internal Mount — Low Power — Boots Just Like An XT	starting at 599.95
20 Megabytes Internal Mount	starting at 949.95
5 Megabytes External System	starting at 649.95
10 Megabytes External System (IBM Format Equals 11.2 Megabytes — An Extra 1.2 Megabytes for the IBM)	starting at 849.95
20 Megabytes External System	starting at 1,299.95
3.3 Megabytes Kodak Backup System	starting at 599.95
Streaming Tape Backup System — Internal Or External	starting at 699.95

**DOS Systems Available:** { IBM/Heath — DOS, 1.0, 2.0, 2.1, 3.0, or later — Apple Franklin — DOS 3.3, Prodos  
TRS/80-LDOS, TRSDOS 6.x, Newdos/80, Dosplus 3.5, CP/M, COCO DOS, Max/80 LDOS, OS9

**WARRANTIED FOR ONE FULL YEAR — PARTS AND LABOR — 24 HOUR SERVICE — CALL TOLL FREE — 1-800-343-8841**

**FLOPPY DISK DRIVES, POWER SUPPLIES AND CABINETS**

Our Disk Drives are UL approved — Our Floppy Drive Cabinets and Power Supplies are Underwriters Laboratory Listed and have passed the required Federal Communications Part 15 Section B-EMI/RFI tests.  
**Warranty on all disk drives is one full year parts and labor. Warranty on floppy disk drive power supplies is five (5) years. In warranty or out of warranty service is 24 hour turn-around on all disk drives and power supplies.**

<b>Tandon — Full Height Drives</b>	
100-1 Single Sided 40 tk Bare	\$128.00
In Case with Power Supply	169.95
Dual Drives in One Cabinet	329.95
100-2 Dual Sided 40 tk Bare	165.00
In Case with Power Supply	209.95
Dual Drives in One Cabinet	384.95
<b>Half High Drives</b>	
65-1 Single Sided 40 tk Bare	125.00
In Case with Power Supply	159.95
Dual Drives in One Cabinet	309.95
65-2 Dual Sided 40 tk Bare	145.00
In Case with Power Supply	179.95
Dual Drives in One Cabinet	349.95
65-4 Dual Sided 80 tk Bare	165.00
In Case with Power Supply	199.95
Dual Drives in One Cabinet	359.95
<b>TEAC Half High Drives</b>	
55A Single Sided 40 tk Bare	128.00
In Case with Power Supply	169.95
Dual Drives in One Cabinet	319.95
55B Dual Sided 40 tk Bare	160.00
In Case with Power Supply	199.95
Dual Drives in One Cabinet	359.95
55F Dual Sided 80 tk Bare	180.00
In Case with Power Supply	219.95
Dual Drives in One Cabinet	389.95
<b>Apple/Franklin Disk Drives</b>	
35/40 Track in Case with Cable and Software	159.95
Controller Card for Two Disk Drives	49.95
Combination Price for Disk Drive and Controller	199.95
<b>Commodore Disk Drives</b>	
Power Supplies and Cabinets 5¼" and Hard Drive Systems	starting at 45.00

**COLOR COMPUTER DISK DRIVE SYSTEMS AND ADD IN PRODUCTS**

40 Track Single Head Drive with Case, Power Supply, Cable	
Controller, Instruction Booklet, Diskettes	\$269.95
Above with Dual Drives in One Cabinet	413.95
40 Track Dual Head with Case, Power Supply, Cable,	
Controller, Instruction Booklet, Diskettes	289.95
Above with Dual Drives in One Cabinet	429.95
128 Memory Upgrade Kit	129.95
Dual DOS Switch	19.95
With Second DOS System — JDOS, RSDOS, Micro DOS, and Booklet	59.95

**TRS/80 HARDWARE**

Model I Starter System — Delivered by UPS	
One Single Sided Disk Drive, Case, Cable, Power Supply,	
TRSDOS 1.3 and Manual	\$220.00
Model III/IV Easy to Install Disk Drive Systems	309.95
Memory Upgrades — 4116 and 4164	starting at 1.50 ea.

**ALL IN-STOCK ITEMS SHIPPED WITHIN 24 HOURS. SAME DAY SHIPPING PROVIDED BY REQUEST WITHOUT ANY EXTRA HANDLING CHARGES.**

**COMPUTERS**

**All of our computers come with a full one year Warranty — Parts and Labor — 24 Hour Service on all in stock parts.**

* IBM Special 10 Megabytes W/Tape Backup Mono/Print Adap. Monitor	\$3,595.00
IBM/PC-256K Two Floppy Drives, One Year Warranty	\$1,895.00
With Monitor Card and High Resolution Monitor	2,195.00
IBM/PC-256K 5 Megabyte Drive, One Floppy Drive	2,495.00
With Monitor Card and Monochrome Monitor	2,695.00
10 Megabyte System	2,695.00
With Monitor Card and Monochrome Monitor	2,995.00
IBM Lookalike Monitor 800h x 650v resolution w/cable	199.00
TRS/80 Model IV Computer 128K Dual Drive RS232	1,095.00

**PRINTERS**

Dot Matrix	
Citizen	\$ Call
Star Micronics	
Gemini X-Series Parallel 120 CPS Near letter quality	starting at \$259.95
Delta 10/15 160 CPS	starting at 424.95
Radix 10/15 200 CPS	starting at 649.95
Panasonic 1090	249.95
Daisy Wheel	
Silver Reed 440 80 Column 12 CPS	315.95
550 132 Column 19 CPS	439.95
770 132 Column 36 CPS	895.00
Olympia 132 Column 14 CPS with Form and Tractor	399.95
Star Micronics 100 Column 18 CPS	352.95
Apple/Franklin Printer Interface w/Graphics and Cable	84.95
Printer Cables	starting at 19.95
Printer Paper — Microperf Edge 1000 Sheets	16.95

**ELECTRICAL**

Surge Protectors — Line Filters — SL Waber — 6 Outlets with Switch	\$ 39.95
Uninterruptable Power Supplies	399.95

**MODEMS**

Volkmodem 300 Baud	\$ 59.95
Signalman Mark X Autodial	123.95
Mark XII 1200/300 Baud Autodial	284.95

**ADD IN BOARDS FOR THE IBM**

Multi Function Board Clock 256K, Parallel Port, Serial Port,	
Special Software	\$399.95
Floppy Disk Controller	\$145.00
STB — Rio Plus 128K	299.95
Graphix Plus	283.00
Graphics Plus II	355.00
Serial Port	84.95
Monochrome Board with Parallel Printer Port	210.00
Quadram — Quadboard w/128K	269.95
Quadcolor I	215.95
Quadcolor II	439.95

**MISCELLANEOUS**

Diskettes in 10 Pack	from \$ 12.95
Twoprint Switches	from 99.95
Disk Drive Cables	from 16.00
Maintenance Cleaning Kits	12.00
Parallel Printer Buffers 8K	149.95
Floppy Disk Drive Cables	
1 Drive	16.00
2 Drives	18.95
Heath/Zenith 2 Drive Cables — Shielded	39.95

**© 1985 SOFTWARE SUPPORT, INC.**

1 Edgell Road, Framingham, MA 01701 (617) 872-9090 Telex-383425

Hours: Mon. thru Fri. 9:30 am to 5:30 pm (E.S.T.) Sat. 10 am to 3:30 pm

**SERVICE POLICY — Our Professional Technical Staff Is Available To Assist You Monday Through Saturday.**

**WARRANTIES — Disk Drives — One Full Year Parts And Labor. Floppy Disk Drive Power Supplies — Five (5) Years.**

**SERVICE — 24 Hour Turn-A-Round On All In-Stock Parts. Dealer Inquiries Invited.**

**Toll Free 1-800-343-8841**

**Please Call For Shipping,  
Handling And Insurance.**

**Please Call For Our Latest Price Saving Specials.**

**Not Responsible for Typographical Errors.  
Prices and Specifications May Change  
Without Notice.**

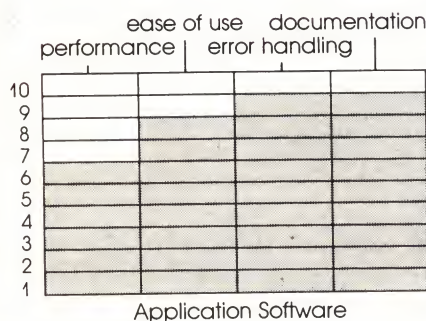


# REVIEWS

## CONTENTS

<b>VIP Database</b>	<b>70</b>
<b>CoCo Paint</b>	<b>71</b>
<b>SBasic 1.0</b>	<b>72</b>
<b>VDOS</b>	<b>74</b>
<b>Double Driver</b>	<b>75</b>
<b>Wirdpro2</b>	<b>76</b>
<b>More Color Computer Applications</b>	<b>78</b>
<b>Better View a Zoo</b>	<b>78</b>

*edited by J. Scot Finnie*



**VIP Database**  
**VIP Technologies (Softlaw)**  
**132 Aero Camino**  
**Goleta, CA 93117**  
**805-968-4364**  
**32-64K**  
**\$59.95**

by James Perotti

**V**IP Database is a file-management system that is another in a series of integrated software from VIP Technologies. Like all the software in the series, VIP Database is a high-quality program, but it has some function limitations that help keep the price low. Within its scope it performs very well.

### Performance

As a file- or record-management system, VIP Database is a high-quality performer. It compares favorably with similar software for other computers. And it has more features than you might expect at its price, including a data-entry form and math package, file sorting, mail merge, record selection with wild-card and multiple-criteria searches, report writing with selective retrieval of fields, interfacing with VIP Writer, and copying and deletion of files.

VIP Database structures data entry and print formatting from forms that you create. The package has a form

editor that you use to insert text prompts and field names for data entry and printing.

Few file-management systems have math packages. The 64K VIP program lets you compute any number of fields in a record. A computed field can use a 16-digit, floating-point number or a dollar format with two decimal points. VIP's math package makes this database program more desirable because you can use it for maintaining all kinds of financial records, including bills, invoices, inventory records, and budgets.

The major function of a file-management system is sorting and selecting records. VIP Database can sort files based on any field, in ascending or descending order. It can select records by matching criteria for any field. It also supports searches based on partial matches. For example, it can find people whose last names begin with the letter B or zip codes that have 45 as their first two numbers. VIP Database also lets you match fields by Boolean relationships such as equal, not equal, greater than, greater than or equal to, less than, and less than or equal to. It can employ multiple criteria for a search, such as "this and

that" and "this or that." These search commands select records that have more than one matching field.

VIP Database has a report writer that formats records for printed copy. VIP programs share this print program. If you have a copy of VIP Writer, you can create personalized form letters that combine information from the database with text from the word processor. Because you can use all the features of VIP Writer with VIP Database, the program has the potential to be a sensational report writer—with all the bells and whistles.

### Performance Shortcomings

VIP Database employs a one-record-at-a-time approach. It lists, reads, writes, and searches one record at a time. Each call for a record requires a disk read. VIP Database is slow because it performs only sequential searches. And because it works with one file, it cannot pull records or parts of records from two files. The program works best with large records; it is awkward with short records, such as lists of names.

Capacity is also a problem. Each record uses a minimum of one disk block of 255 characters. The capacity of a single-sided disk is 558 to 567 blocks, which decreases when you include the print form and data-entry forms.

### Ease of Use

VIP Database has six menus that facilitate its use. It prompts you by displaying the available commands on the bottom of the screen. This system is extremely easy to use, especially when you consider all of the program's special features. VIP Database's six menus are main menu, create database, maintain database (add, delete, sort, and search), screen



## REVIEWS

menu (character sets, screen colors), print-format menu, and printer parameters.

A minor inconvenience is that the program references fields by number rather than by field name. You have to remember the order of the fields as you placed them in the original form. It is a simple matter, however, to print out the original form, which lists field numbers next to which you can write the field names for reference.

VIP Database handles errors very well. It ignores commands that do not apply to the menus. I could not make the system crash. Error messages appear on screen appropriately.

VIP Database earns highest marks for its documentation. The 100-page manual is packaged in an attractive three-ring binder, making it easy to find what you need. The manual is well organized and written in understandable English. And because VIP Database is exceptionally easy to use, you aren't likely to need to consult the manual very often.

### Summary

VIP Database is a great file-management program for small jobs. It is well documented and easy to learn to use. It has several good features, and the math feature gives it a strong edge over its competition. VIP Database is a good value; for a small investment it has an awful lot to offer. ■

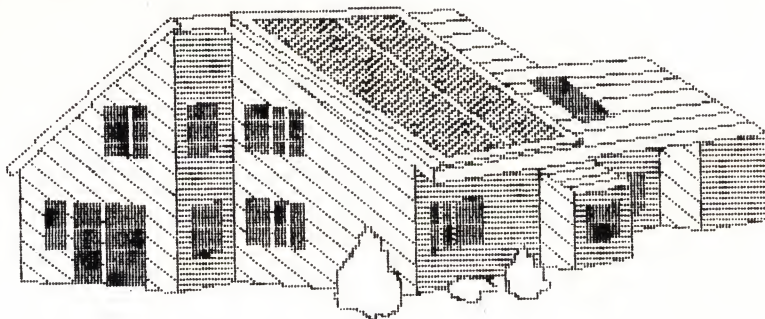
	performance	ease of use	documentation	error handling
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Application Software

**CoCo Paint**  
**Four Star Software**  
**P.O. Box 730**  
**Streetsville, Ontario**  
**L5M 2C2, Canada**  
**64K, disk drive**  
**\$39.95, \$49.95 in Canada**

by **Scott L. Norman**

**C**oCo Paint turned out to be surprisingly difficult to review—not



*A CoCo Paint Drawing of a Solar Energy House*

because it has any major flaws, but simply because it is so much fun to use that I had a tough time tearing myself away long enough to write about it!

During the past 18 months there have been introductions of several powerful graphics editors—software that uses the Color Computer's high-resolution graphics capability to create and manipulate images. (See the review of Graphicom, for example, in the July 1984 issue of *HOT CoCo*, p.17.) CoCo Paint is one of the best of these new toolkits. It gives owners of 64K machines everything they need to produce complex PMODE 3 or 4 pictures, save them on disk, print them, and transmit them to another Color Computer.

CoCo Paint is more than a stand-alone electronic coloring book, however. It is easy to incorporate CoCo Paint artwork into a Basic program; if you long to dress up your programming with fancy title screens or great game boards, CoCo Paint has a lot to offer you. It provides a powerful set of functions that "feel" like those of Apple's Macintosh.

The CoCo Paint package includes two identical copy-protected system disks and an unprotected utility disk. The latter contains printer drivers, character sets, and texture files (all of which can be modified), as well as several demonstration screens. To run the program, you boot one of the system disks and replace it with a working copy of the utility disk, which must remain in drive 0 during a working session. You might have to push the reset button, as the system disk's opening display prompts you to do, to correct the CoCo's red/blue ambiguity.

CoCo Paint gives you three high-resolution screens on which to draw. You can produce more than three images in

one session by saving a screen's contents to disk and then clearing the drawing area.

The program also gives you complete freedom to choose any of the following for your drawing instrument: keyboard, joystick, mouse, the X-Pad graphics tablet, or Tandy's Touch Pad. (For more information about the new Touch Pad, see the review of it in next month's issue.)

Each interface has advantages. For example, I found that while the joystick is satisfactory for many kinds of strokes, for fine details it is best to use the keyboard's arrow keys. This isn't a handicap because it takes only one keystroke to designate a new input device. The program's numerous single-letter commands force you to return to the keyboard often anyway. The X-Pad's function keys are fully supported, which minimizes this kind of switching. The new Touch Pad and the mouse mimic the joystick's resolution and single-button operation. Devotees of these interfaces will be pleased to discover just how convenient they can be with CoCo Paint.

The simplest CoCo Paint operation is freehand drawing. Once you have selected contrasting background and drawing colors, you can sketch with the joystick by depressing the pushbutton and moving the handle. For keyboard operation, the arrow keys move the cursor one pixel at a time. The shift key adds continuous motion, and the spacebar sets a pixel to the current color. To erase a small section of a drawing, you redraw it in the background color.

Most people aren't skillful enough to get by with rough sketches. CoCo Paint offers a selection of useful shortcuts. A typical procedure involves using both a cursor-control instrument



and keyboard commands. You can string straight lines between two points, and set up circles and rectangles. "Rubber band" figures shrink and grow before your eyes. One of the program's most appealing features is a zoom command that provides a magnified view of the area around the cursor. It lets you touch up a drawing on a pixel-by-pixel basis for fine control.

CoCo Paint can fill closed regions of a drawing with textures in much the same way as Extended Color Basic's PAINT command. CoCo Paint has 64 predefined textures. Users can edit them and add up to 64 of their own designs to the disk file. A separate option lets you draw rectangles filled with a selected texture in a single step. It is possible to paint any area with multiple textures for wild effects.

CoCo Paint comes with three text files, each containing five character sets that you can mix with drawings. The editor routine from the utility disk can modify or augment individual characters.

You can capture any portion of a drawing on a rectangular "stamp" and reproduce it at another location; the procedure is similar to Extended Color Basic's GET and PUT operations. The following editing operations work on stamps: stretching and shrinkage, rotation in 90-degree steps, reflection across an imaginary horizontal line, and inversion (switching to reverse video). Stamping is also the only way to move part of a drawing to a new location.

You save CoCo Paint pictures in a format that is usable only by the graphics editor or in conventional binary files that you load into Disk Basic's high-resolution graphics pages. Once it's loaded, you can modify a CoCo Paint picture with any of Basic's graphics commands.

Printed CoCo Paint images center horizontally on the page and occupy more than half a page width. You can select the baud rate at printing time if you like. The package includes driver software for Epson, Gemini, and Radio Shack printers, along with a source-code listing for modification by experienced users. Owners of other printers can use their own driver routines by renaming them PRDVR/BIN, the routine name that CoCo Paint expects to find on the utilities disk.

Although I can think of a change or two that I would like to see made in

CoCo Paint (a simpler way to draw ellipses would be handy), they are relatively minor. Authors Dave Shewchun and Roland Knight have produced an attractive, easy-to-use system that makes the most of the Color Computer's fine graphics capabilities. ■

	performance	ease of use	error handling	documentation
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Application Software

## SBasic 1.0

**Tandar Software**  
**12 Araman Drive**  
**Agincourt, Ontario**  
**M1T 2P6, Canada**  
**416-293-2014**

**32 and 64K versions**  
**\$19.95, plus \$3 shipping**

by **Stuart Hawkinson**

SBasic 1.0 is a machine-language processor that converts structured Basic commands into standard Color Basic. The Basic language that comes with the Color Computer lacks many of the structured concepts of modern computer languages. It requires the use of numerous GOTO statements to control program flow. Missing are the various structured forms of the loop such as WHILE. . .DO and LOOP. . .UNTIL, the structured IF. . .THEN. . .ELSE, and the case-selection statement. SBasic adds these features in the form of a compiler that generates the equivalent Color Basic program.

## Structured Programming

The principles of structured programming include single-entry, single-exit code blocks and a minimal reliance on GOTO statements. A typical application of structured language comes in the programming of loops. To sum the numbers from 0 to N, for example, a Basic program segment might look like this:

```
100 S=0
110 IF N=0 THEN GOTO150
```

```
120 FOR I=1 TO N
120 :S=S+I
140 NEXT I
150 ...
```

Notice the GOTO programming in line 110, which is necessary when N=0 to keep the loop from executing. A structured version of the program in SBasic looks like this:

```
100 S=0
110 I=0
120 WHILE (I<N)DO
130 :I=I+1
140 :S=S+1
150 ENDLOOP
160 ...
```

In addition to the WHILE (expression) DO. . .ENDLOOP construct, SBasic adds the LOOP. . .ENDLOOP and the LOOP. . .UNTIL (expression) forms, along with the QUIT command to exit the loop and CONTINUE to restart from the top.

The program augments decisions with the block-structured IF, SIF (expression) THEN. . .ELSE. . .ENDIF, and the case-selection form, CASEOF (value)\$ (val 1) . . . \$(val 2) . . . ENDCASE. SBasic compiles programs that contain these structured statements into normal Color Basic when you execute the .C command. The program you produce with this command remains in memory. You can run it with the CoCo's Basic interpreter or save it to cassette or disk.

## Operation

SBasic comes packaged on cassette or disk. You can easily save the cassette version to disk with the instructions Tandar provides. After loading and executing the program, SBasic installs itself in protected memory. Because it occupies only 1.3K of RAM, the program won't get in the way of even your longest programming efforts.

SBasic's documentation is a 20-page user's manual, which adequately describes each command and discusses the syntax of the new Basic statements. A separate summary sheet serves as a quick reference for program operation. Sample program segments illustrate the new language capabilities. The manual also lists error messages generated by the compiler. They fall into the categories of syntax errors, loop-nesting problems, and missing end statements.

Operating the SBasic compiler is





## DAISY WHEEL

### New Smith Corona L-1000

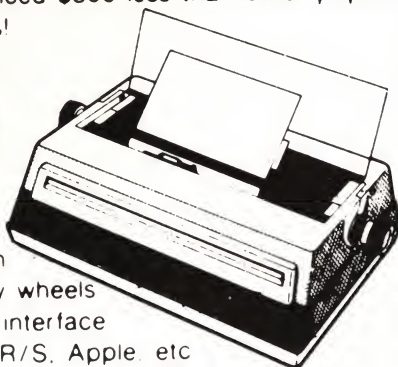
True letter quality printer for less than the cost of an office typewriter! Priced \$500 less than other popular daisy wheel printers!

SALE PRICE:

**\$269**

#### FEATURES:

- ★ Friction feed
- ★ 15 cps. 120 wpm
- ★ Changeable daisy wheels
- ★ Parallel or serial interface
- ★ Compatible with R/S. Apple etc



#### SUNLOCK SYSTEMS

4217 Carolina Ave.

Richmond, Va. 23222

#### ADDITIONAL PRINTER SPECIALS

ADDITIONAL PRINTER SPECIALS									
Epson		Okidata		Comrex II	\$389	Citoh 8510	\$329		
RX80	\$239	ML82	\$299	Comrex III	629	Citoh F10	899		
80FT+	299	ML83	519	Gemini 10X	269	Citoh 1550	519		
RX100	399	ML84	629	Gem.PrType	329	Okimate 20	149		
FX80+	429	ML92	359	Gem.Radxl0	519	Sv.Reed 550	449		
FX100+599		ML93	569	Gemini 15x	379	LQ 1500	1039		
JX 80	579	ML182	229	Sv.Reed 500	379	Zen Monitor	99		

**TO ORDER CALL TOLL FREE 800-368-9191**

In Virginia call 804-321-9191

We accept MasterCard, Visa and CODs

## MOVING?

Let us know 8 weeks in advance so that you won't miss a single issue of **HOT CoCo**. Attach old label where indicated and print new address in space provided. Also include your mailing label whenever you write concerning your subscription. It helps us serve you promptly.

Write to: Subscription Department • PO Box 975 • Farmingdale, NY 11737

☐ **Extend my subscription one additional year for only \$24.97.**

☐ **Payment Enclosed** ☐ **Bill Me**

Canada & Mexico \$27.97/1 yr. only

US funds drawn on US bank.

Foreign surface \$44.97/1yr. only

US funds drawn on US bank.

Please write in new address here and attach old label or fill in below.

Affix Old Label Here

name \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

New Address

name \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

HOT CoCo • PO Box 975 • Farmingdale, NY 11737

# DYNAMITE+™

## "THE CODE BUSTER"

disassembles any 6809 or 6800 machine code program into beautiful source

- Learn to program like the experts!
- Adapt existing programs to your needs!
- Convert your 6800 programs to 6809!
- Automatic LABEL generation.
- Allows specifying FCB's, FCC's, FDB's, etc.
- Constants input from DISK or CONSOLE.
- Automatically uses system variable NAMES.
- Output to console, printer, or disk file.
- Available for all popular 6809 operating systems.

FLEX™ \$100 per copy; specify 5" or 8" diskette.

OS-9™ \$150 per copy; specify 5" or 8" diskette.

UniFLEX™ \$300 per copy; 8" diskette only.

For a free sample disassembly that'll convince you DYNAMITE+ is the world's best disassembler, send us your name, address, and the name of your operating system.

# NEW

## CoCo OS-9 VERSION

# \$59.95

DISASSEMBLES OS-9, FLEX, DOS FILES

**Order your DYNAMITE+ today!**

See your local DYNAMITE+ dealer, or order directly from CSC at the address below. We accept telephone orders from 10 am to 6 pm, Monday through Friday. Call us at 314-576-5020. Your VISA or MasterCard is welcome. Orders outside North America add \$5 per copy. Please specify diskette size for FLEX or OS-9 versions.

#### Computer Systems Center

13461 Olive Blvd.

Chesterfield, MO 63017

(314) 576-5020



UniFLEX software prices include maintenance for the first year.

DYNAMITE+ is a trademark of Computer Systems Center.



FLEX and UniFLEX are trademarks of TSC.  
OS-9 is a trademark of Microware and Motorola.  
Dealer inquiries welcome.





easy. You edit programs in memory, the same as Color Basic programs. And once you compile with the .C command, your program works much like Color Basic programs and occupies the same memory location. The optional .CP command sends potential error messages to your printer so that you can retrieve errors from long listings that are scrolling by on the screen.

Listings 1 and 2 show a sample program before and after compilation by SBasic. The compiler generates the necessary GOTO statements, negates the IF tests, and replaces the ENDIF statements with REMs. It allows only a single statement on a line containing an SBasic command.

SBasic also provides several useful utilities. The .P command packs your program by removing all the leading colons and spaces from program lines. I found that this command worked only after compiling the program with the .C command. If you use .P first, the resulting Basic program contains numerous errors. (The .P command in the 64K version crashed my system.)

Two additional commands are available on the 64K version. You can store your SBasic program in a RAM buffer by using the .S command. This saves the program in the upper 32K of a 64K machine. The .L command loads the program back from the buffer into the normal 32K position. This makes working with the compiler fast and convenient, especially when debugging a program. Typing .S and .L beats typing SAVE“(program)” and LOAD“(program)”.

## Pluses and Minuses

SBasic is very convenient to use. It installs into protected memory, and the RAM buffer is a real plus for the 64K user. Error trapping is well implemented, but designed with little regard for common programming errors.

SBasic's most important attribute is that it is a structured language. It could be very helpful to students studying algorithms in structured languages, such as Pascal.

SBasic's syntax is picky. You cannot put any spaces in SBasic constructs. For example, the statement SIF (expression) THEN can't have spaces between the parentheses and keywords. Another negative aspect of SBasic is that it is restricted to single lines without other Basic statements,

### Program Listing 1. Before SBasic

```
100 REM TEST OF SBASIC 1.0
110 REM NESTING DECISION BLOCKS
120 INPUT" ENTER A NUMBER";N
130 SIF(N<10)THEN
140 : PRINT"LESS THAN TEN"
150 ELSE
160 : SIF(N=10)THEN
170 : PRINT"EQUAL TO TEN"
180 : ELSE
190 : PRINT"GREATER THAN TEN"
200 : ENDIF
210 ENDIF
220 GOTO 120
```

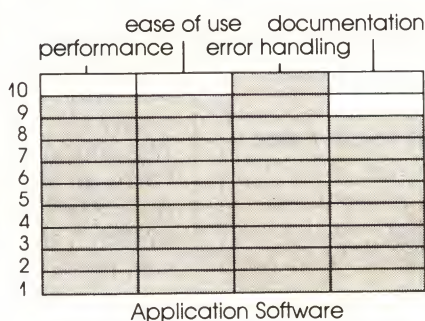
### Program Listing 2. After SBasic

```
100 REM TEST OF SBASIC 1.0
110 REM NESTING DECISION BLOCKS
120 INPUT" ENTER A NUMBER";N
130 IFNOT(N<10)THEN160
140 : PRINT"LESS THAN TEN"
150 GOTO210
160 : IFNOT(N=10)THEN190
170 : PRINT"EQUAL TO TEN"
180 : GOTO200
190 : PRINT"GREATER THAN TEN"
200 : REM
210 REM
220 GOTO 120
```

making for long programs. You also can't put other SBasic statements in the middle of the CASEOF construct.

## Summary

SBasic adds some useful programming structures to Color Basic. It can serve as a tool to introduce the concepts of programming without GOTO statements. Although it is not versatile enough for use in production programming, SBasic is convenient, easy to use, and brings CoCo owners a long way from Color Basic. ■



## VDOS

**Dr. Preble's Programs**  
**6540 Outer Loop**  
**Louisville, KY 40228**  
**502-966-8281**  
**32-64K**  
**\$49.95**

by Terry Kepner

VDOS is a machine-language program that lets you manipulate and

maintain several programs in memory, simultaneously. The total number of programs you can store in memory depends on how much RAM your computer has. If you have a 64K Color Computer, then VDOS uses the entire second bank of 32K (normally inaccessible to Basic) as the storage location for these programs. This means that while you're running one program in the lower 32K bank, you can still have two, three, or more programs stored in the upper RAM bank—out of the way but instantly accessible.

VDOS stands for virtual disk operating system, a fair description of the program because it emulates a disk drive. It is similar to having a very fast disk drive in RAM. The program does this by partitioning your computer's RAM into two sections: the user area and the storage area. Because user programs are stored in RAM, you can transfer them to and from the VDOS storage area almost instantaneously.

When loading VDOS, you must specify an amount of RAM (up to 54K bytes on a 64K computer) that you want to set aside for program storage. The program defaults to 30K otherwise, leaving the lower bank of RAM for running programs. 32K computers have smaller work and storage areas.

VDOS was designed to operate with other in-memory utilities, such as printer spoolers or drivers. When it loads into your computer, VDOS prompts you to type in the highest memory address you want it to use, then moves itself to the halfway point between that address and the bottom of user RAM. User RAM is defined as the RAM, if any, above the graphics pages and below Basic's top of memory. If you want to devote more or less space to VDOS, you use the PCLEAR command (before loading the program) to set the number of graphics pages and low end of user RAM, and the CLEAR command to set an upper limit to Basic. After this procedure, VDOS locates itself immediately above the upper limit, reserving the balance of RAM for program storage.

VDOS always displays the address of the end-of-programming memory. After you install the program, you can use your computer as you do normally, setting memory usage for utilities located below VDOS and graphics pages. If you want to access the VDOS area, type "VDOS" and you'll get the VDOS control menu. Pressing the reset



button doesn't disable VDOS. If a Basic or machine-language program locks up, you can still recover it without losing access to VDOS or the programs you might have stored in it.

The VDOS menu has several options that access operations within the program's RAM storage area: list the directory of programs, load a Basic program, save a Basic program, load a machine-language program, save a machine-language program, "kill" Basic or machine-language programs, and return to Basic. You can load your favorite utilities and programs, such as a variable cross-referencer, program compacter, terminal program, or anything else, and hold them in the storage area. When you need to change programs, use the VDOS commands.

VDOS is much faster and more reliable than disk drives. You'll have no disk errors to worry about, no crashed directories—in short, no bothersome input and output errors. Unlike a disk system, VDOS tells you how much space is left for storing programs, instead of telling you "disk full" after the fact.

## Shortcomings

Nothing is perfect and VDOS has some minor problems. You can't call VDOS from within a program and transfer information. And nothing in the VDOS instructions tells you how to save the program to disk, despite the fact that the program has been advertised for disk and cassette systems. Also, the procedure of loading several programs, moving them to the storage area, and saving them back to disk is time consuming.

VDump, a separate utility by the same manufacturer, sells for \$14.95 and partially corrects the last problem because it lets you save everything to tape and reload it later. You can store the utility in the VDOS storage area so it is always available for saving when you need it. You probably need to purchase VDump to go along with VDOS if your computer is cassette based. VDump does little for disk-based computer systems. The company also sells VPrint for \$9.95 to create printouts.

You can't use some kinds of machine-language programs in the VDOS storage area. To store a machine-language program, you must know its start, end, and execution addresses, and you can get them from Basic. The difficulty you might have involves autostart programs and those that don't

load in a sequential order (for example, a program that loads a title page to video memory during loading or that uses special loading modules or protection schemes). When you use the break key to get into programs such as these, you might not be able to get them to store properly in the VDOS storage area.

## Summary

VDOS is a handy utility for storing several programs in the upper 32K bank of the Color Computer while in Basic or in conjunction with a disk system. It gives you a convenient method of keeping several programs available without resorting to multiple disks or multiple tape loads and saves. VDump helps you by greatly reducing the time you spend saving and loading multiple programs in the VDOS storage area. Despite some minor shortcomings, I like this program. If you want the convenience of a disk system with much higher accessing speeds and a much lower price, VDOS delivers. ■

	construction	quality	documentation
	set up	performance	ease of use
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

Hardware

**Double Driver**  
**Moreton Bay Software**  
**316 Castillo Street**  
**Santa Barbara, CA 93101**  
**805-962-3127**  
**fits D, E, and F boards,**  
**requires monochrome**  
**or color monitor**  
**\$24.95 plus \$2 shipping**

by Gary Clemens

Double Driver is an adapter for connecting a composite video monitor to your Color Computer. It intercepts the composite video signals produced by the computer before they are converted to an RF (radio frequency) signal for use with your television. The resulting output signal

with a monitor is much clearer and sharper than the RF signal on your television.

Double Driver is solderless, easily installed, and provides concurrent output for monochrome, color, and audio. Because all three modes are available at the same time, you can use either a television and monitor or a monochrome and color monitor simultaneously. And changing from monochrome to color doesn't require opening up the computer to relocate wires, the case with other adapters.

Double Driver is made up of three rather heavy wires with female RCA phono-plug connectors for the monochrome, color, and audio output signals; a wire with a small alligator clip that hooks to a wire inside the computer to pick up the audio signal; a tiny adapter socket; and the main circuit board.

The installation documentation is six pages long and provides adequate step-by-step instructions. It includes two drawings, one for the older D and E versions of the CoCo and one for the newer F version. The diagrams show the inside of the CoCo and point out where the adapter must make connections. The documentation also has a section of hints that gives pointers on fixing monitors with a very low impedance audio input, and cleaning up the RF output for some combinations of old color televisions and monochrome monitors. Moreton Bay makes another video driver for the Color Computer 2.

## Plugging It In

Installation of Double Driver is easy, even if you have never attempted any kind of hardware project. All you have to do is open up the computer, locate and remove the MC 1372 chip, insert the adapter socket into the socket that contained the chip, and replace the chip. Then you attach the alligator clip to a wire on the outside of the RF modulator box.

The only difficult part of the installation is providing a way to bring the output leads outside the case. The best method is to file a notch in the top part of the computer case near the channel 3-4 switch. But the whole installation takes less than half an hour, even if you have never opened up your computer before.

The adapter I received for review had a problem that took some time to



solve—a cold solder joint. After a few seconds of resoldering, however, everything worked fine.

I have checked Double Driver with four different types of monitors, including high- and medium-resolution monochrome monitors, a medium-resolution color monitor, and a color television with a monitor-input circuit. The picture quality with Double Driver is excellent on all of these monitors. On a monochrome monitor, the 64-column mode produced by several Color Computer word processors is sharp and easy to read. Even the 85-character mode approaches legibility. On a color monitor, the legibility is somewhat decreased.

Because of its simple installation procedure, well-designed connection, and ability to adapt monochrome and color monitors at the same time, Double Driver could be your best bet in a monitor adapter. ■

	ease of use	documentation
performance	error handling	
10		
9		
8		
7		
6		
5		
4		
3		
2		
1		

Application Software

## Wirdpro2

P.O. Box 248

Fredericton, NB

E3B 4Y9, Canada

16K, Extended Color Basic, cassette  
\$9, plus \$1.50 for shipping

by Peter Paplaskas

HOT CoCo staff

Word processing with Wirdpro2 is like driving an economy car with standard options. Why pay more for luxury features you don't need when all you are looking for is reliable operation? Many of Wirdpro's features come in word processors costing \$40 or more. And because Wirdpro2 is written in Assembly language, it allows rapid text entry.

The first thing you notice about this program is that it lacks a manual. But don't be put off. The documentation is

on the program cassette. After loading Wirdpro2, you can produce a four-page printout of the documentation, which is stored as four separate files. Wirdpro2 comes with printed directions that explain how to load the program and print out the documentation. But the bulk of the manual resides on the cassette, helping to bring down the cost of packaging and distribution.

Wirdpro2 is a screen-oriented editor. By moving the cursor with the four arrow keys, you can access a complete screen of text easily. The key-repeat function is a useful feature. It causes keys you select to repeat 10 times. To activate this feature, you press the key you want to repeat and then press the clear key. Pressing the clear key a second time repeats the selected key another 10 times. If you apply this feature to the arrow keys, you can use them to move around the screen more quickly.

The shift-right-arrow key combination performs character insertions; the shift-left-arrow key combination provides character deletions. The shift-up- and shift-down-arrow combinations perform insertion or deletion of whole lines, respectively. The line-insert mode pushes the text one full line (80 characters) to the right. If you are inserting more than one line, you have to do another line-insert command. This is a minor drawback that is not really a problem because you seldom insert more than 80 characters at a time.

Other key commands include move line and copy line. To move a line, you position the cursor at the beginning of the block you want to move and press the shift-clear key combination. Then you move the cursor to the point where you want to insert the block and press the break-B combination. This command deletes the text block from its original location. The copy command moves a block of text without deleting it from its original location.

## Screen Functions

Wirdpro2 displays text two ways. It has a vertical window mode, which scrolls vertically as you type, and a vertical-and-horizontal mode, which scrolls up and down and side to side. Both displays show you 80 columns of print on a 32-column screen.

The vertical display mode's high-resolution text is arranged in an unusual format. The display contains five blocks of two and a half lines. Each block makes up 80 columns. At the end

of every third line you see a half-line stripe that marks the end of the 80-column printer line.

The vertical-and-horizontal window-display mode scrolls sideways to take in the full 80 columns. A vertical line marks the 80-column boundary. After 80 characters are typed in, the text moves down to the next line on the screen. Although you can't see all the characters of a line on the screen at any one time, you can fit more characters on the screen in this mode than in the vertical mode.

The hi-res display is white on black, and generally very good. Some characters can be hard to distinguish, such as the lowercase e. A monochrome monitor eliminates this problem. Wirdpro2 lacks true descenders, but keep in mind that this is a no-frills program.

Some other commands that Wirdpro2 offers include the auto-margin function and the perma-return feature. The auto-margin function lets you control where words fall at the end of a printer line; it eliminates arbitrary word breaks by pulling the whole word down to the next line. The perma-return feature forces a permanent, end-of-line printer command to pull the printer down to the next line.

## Additional Features

A two-key command performs reading and writing of cassette files. The program does not use file names. I don't see this as a drawback because it means I don't have to remember file names. Don't expect to see "ready cassette" on your screen when you use these commands.

Wirdpro's printer functions are limited, but they provide you with what you need to make printouts of 80 or more columns. The print-page function uses a break-P-nn key combination, where nn is a variable for the number of copies of each page that you are printing. To chain files you use the multipage function, the break-M-nn combination. Because you can store only 5,200 characters in a file, you'll use the multipage function frequently.

Wirdpro does not have any print-format menus. Before you execute the program you should insert the POKes necessary to your particular printer, such as the baud rate.

## Summary

Wirdpro2 is a great program for CoCo owners who want a basic word



## Reader's Forum

Continued from p. 67

### Negative Offset For CLOADM

Most CoCo users know of the offset option for CLOADM. This takes the form CLOADM "example", X, where X is the offset. For example, if a program loads at memory location 1536 without an offset and X equals 500, the program would load at 2036. Though useful, this has one major limitation. There is no provision for a negative offset. In other words, if your program normally loads at 1536 and you want it to load at 1024, you can't just enter a CLOADM "example", -512. So what can you do? This simple method allows negative offsets.

There are 65535 possible addresses for the CoCo. If you start the address at 0 and increment it until it passes 65535, the addresses will "turn over" and start again at 0. You can take advantage of this fact in using CLOADM. For instance, if you load the same hypothetical program used in the first two examples with CLOADM "example", 65535 the program will load at 1536 because the address comes a complete circle.

Now for the crux of the matter. What if you used an offset just under 65535? Then the address would "turn over" and approach the original loading address but fall a little bit short. This would be a negative offset.

To determine the exact offset needed, first subtract the original loading address from 65535, then add your desired starting address to the result. For example, to solve the original negative offset problem—loading a program that normally loads at 1536 at 1024—you would do the following:

- $65535 - 1536 = 63999$
- $63999 + 1024 = 65023$

### ● CLOADM "example", 65023

This technique also works with EDTASM + 's L command from ZBug.

Keith Campbell  
Salem, VA

### Padpatch

Many owners of Radio Shack's X-Pad have been disappointed that the accompanying software provides no means to store graphics to tape or disk. My Padpatch program gives that capability to the Radio Shack software.

To install Padpatch, first CLOAD the program that comes with the X-Pad and change line 380 as indicated in Program Listing 2. Then add lines 954-57 and 2905-2986. Next, CSAVE a copy of your work as a backup and run it. Make sure you use eight or fewer characters for file names.

Padpatch uses the two upper left and right corner holes on the menu that the Radio Shack software leaves undefined. By placing the pen in the down position in either hole you access a text page prompting "Cassette?", "Disk?", or "Abort?". The rest of the program is menu driven, and it prompts for "Save", "Load", and "File Name". Padpatch automatically finds the beginning and end of your drawing in memory and saves it to tape or disk with these addresses. You do not need to know these addresses to use Padpatch.

Bobby Ballard  
Brooklyn, NY

Continued on p. 84

Circle Reader Service card #273

### DRACO SOFTWARE

Calorie Counter 32K  
412 food menu \$29.95

Data Byte 16K provides  
byte values for M.L.  
game programming \$9.95

Data Draw 16K provides  
string commands for  
ECB prog. \$7.95

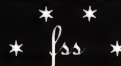
#### GAMES 16K

Tic-Tac-Toe.....\$4.95  
Trench War.....\$3.95  
Intercept:.....\$3.95  
Domes-Day.....\$4.95  
3-D Maze.....\$4.95  
E-Z Art (Graphics)  
\$4.95

All CoCo Cassette

### DRACO SOFTWARE

22 Lassell Street  
Portland, Me. 04102  
orders over \$35 sub.  
10%.



## FOUR STAR SOFTWARE

\* CoCo has the *potential*, we have the *products*, you have the *power* \*

### COCO PAINT

(64K and at least one disk drive required)

- ☐ Supports Keyboard, Single Joystick, Mouse, Koala Pad, and Graphics Tablet.
- ☐ Allows the user to combine Hi-Res Graphics and various text fonts. Create you own text or modify supplied text styles to fit your needs.
- ☐ Create Stamps: rotate, mirror, shrink, expand or invert.
- ☐ Screen dump to most common printers.
- ☐ Option to save screens in standard binary format which allows integration into your own programs.
- ☐ Communications capabilities (300 or 1200 baud).
- ☐ Make use of numerous built-in textures to create special graphics effects. Utility included to design your own textures.
- ☐ Full documentation and handy reference card included. Very easy to use.

**DISK ONLY: \$39.95 (U.S.) OR \$49.95 (CDN)**

Cheque or Money Order  
Add \$2.50 shipping

Ont. Residents add 7% tax

P.O. BOX 730  
STREETSVILLE, ONTARIO  
CANADA  
L5M 2C2

Software submissions wanted  
Dealer enquiries welcome  
Overseas orders add 10%

"Send for a free copy of our Software Catalogue"



processor without having to pay for all the frills and luxuries of more expensive software. Most of its features are similar to those you find in other programs. And Wirdpro2's author, Peter Carr, is pledged to providing support for the product. He urges you to write to him with whatever problems you might have. ■

	organization thoroughness	production readability	quality
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

Books

## More Color Computer Applications

John P. Grillo and J.D. Robertson

Wiley Press

One Wiley Drive

Somerset, NJ 08873

201-469-4400

160 pp., softcover, \$14.95

optional program disk: \$24.95

by Gary L. Matthews

**M**ore Color Computer Applications is a fun book. It provides an excellent introduction to high-resolution graphics on the Color Computer and to programming technique in general.

I was skeptical when I picked up this book because I've been disappointed by other volumes purporting to be compilations of applications for the CoCo. Such books often seem to be trying to make up in quantity what they lack in quality. That's why the first thing I noticed about *More Color Computer Applications* was its small number of programs: 11 in all, one for each chapter. Some of these programs are plain useful, others are humorous or entertaining—and all are of high quality.

One program of special interest is an alphabet generator, which uses Extended Color Basic's DRAW command to mix text with high-resolution graphics. Although it prints only lowercase letters, the character set is attractive and easy to incorporate into

other programs. (The authors do this throughout the book.)

Another instructive program the book provides is called Seesort. It illustrates several methods of arranging items in numerical or alphabetical order, including exchange or "bubble" sort, delayed-exchange sort, Shell-Metzner sort, Shell sort, and insertion sort. The "see" in Seesort points out the program's special touch: It generates a graphic map of the data as it is sorted, letting you see exactly how each sort works and how the sorting methods compare in speed and efficiency. (The clear winner is the Shell-Metzner sort.)

An especially enjoyable chapter features a sketchpad program based on "Tangrams." Tans—predrawn shapes that result from dividing a square into seven pieces—are the design components of Tangrams. You can combine the Tans shapes into an astounding number of silhouette-like images. Martin Gardner once mentioned Tangram's in a *Scientific American* column. This connection is pertinent because the approach that Grillo and Robertson use throughout this book is reminiscent of Gardner's "Mathematical Games" essays.

Other programs in *More Color Computer Applications* include a high-resolution card game with an explanation of the logic required to program a deck shuffle, a simulation of electrical point charges, and a Zodiac "slide show." The Zodiac slide show provides horoscopes, such as: "You will be tortured unmercifully by nine salesmen from Panama." It also offers such tongue and cheek advice as: "Surround your problem carefully and hand it to someone else."

The authors of this book display genuine affection for the CoCo and knowledge of its capabilities and limitations. The book does contain a few minor mistakes, however. For example, the book states that it is not possible to indent lines to make a program segment stand out in Color Basic. But you can do this by placing a colon before the statement. Then you can indent all you want. The book also asserts that copying a graphic screen onto a disk for future use requires a program of "considerable magnitude." In fact, this is an easy process: Type SAVEM "FILE NAME", 3584, 9727, 3584. With this in place you can reload the picture at will by typing LOADM "FILE NAME".

An optional program disk that contains the programs from *More Color Computer Applications* and the authors' previous volume, *Color Computer Applications* (reviewed in the September 1984 issue of *HOT CoCo*, p.104), is available with the book. This offers a nice change of pace for readers who are tired of typing in long programs. If your household recently acquired a Color Computer, or if you are someone interested in high-resolution graphics programming, *More Color Computer Applications* might just be the right stuff. ■

	meets objective	maintains interest	documentation ease of use
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

Educational Software

## Better View a Zoo

Sunburst Communications

Room BC 999

39 Washington Avenue

Pleasantville, NY 10570

800-431-1934

32K, disk drive

\$55

by Dennis W. Peterson

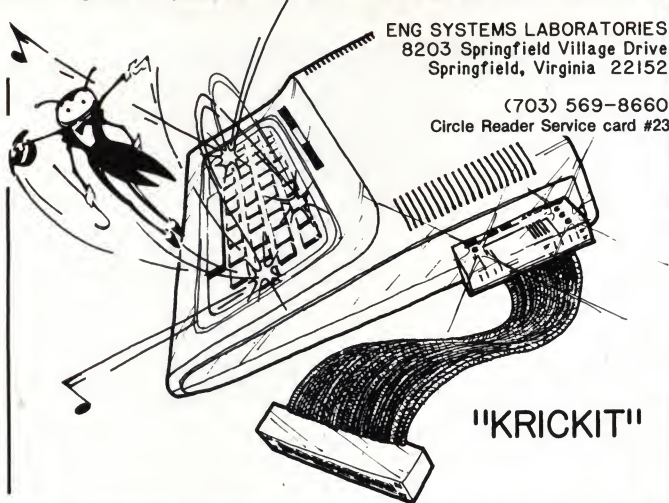
**A**s a teacher and reviewer, I see a lot of educational software go in and out the door of our home. I knew Sunburst had a winner in Better View a Zoo when my 5-year-old son asked, "Dad, do we have to return this one?" Judging from its content, Better View a Zoo is designed for preschoolers and kindergartners, but portions of it might hold the interest of a second grader. It has an animated storybook and six learning games.

## Performance

The storybook presents music, animated scenes, and lines of a poem at the bottom of each scene. The poem requires an older child or an adult as a reader for preschoolers, but this isn't a disadvantage because most children at that age need computer supervision anyway. As it should be with any early-learn-



## IS YOUR COMPUTER IGNORING YOU ???



ENG SYSTEMS LABORATORIES  
8203 Springfield Village Drive  
Springfield, Virginia 22152

(703) 569-8660  
Circle Reader Service card #23

"KRICKIT"

You've just typed in the Gettysburg Address and now you see that your computer only heard every other word!

THE KRICKIT CHIRPS ONLY WHEN YOUR COMPUTER HAS CAUGHT THE KEY. With the Kricket, there is no wasted effort pounding keys to make sure they contact or looking at the screen after every character. You can keep your eyes on the listing and not lose your place.

Works great with text editors and DBM's (Telewriter-64 and Homebase, to name a few) or when entering programs with just the BASIC line-editor in your computer. Just plugs in! Needs no software or hardware modifications. Built-in speaker! Uses no CPU time! Your computer has better things to do than sound key beeps.

The Kricket has other valuable features, too. A convenient switch controls the Cartridge Interrupt line. Instead of clumsy, messy tape on fingers 7 or 8, just flip the switch to access Basic with a game pak installed. It also has a more accessible reset switch, lighted power indicators, gold edge-fingers and an extension cable.

We are sure that after you try the Kricket you will never want to be without it. Take 30 days to decide you like it or return it for a full refund. 24-hour order line. Order yours today for only \$59.95 (plus shipping and handling). COD, Visa, and Mastercard accepted.

Circle Reader Service card #223

## DISKETTES AND 680X SOFTWARE

**SUPER SLEUTH DISASSEMBLER** EACH \$99-FLEX, \$101-OS-9  
interactively generates source on disk with labels, includes xref  
specify 6800,1,2,3,5,8,9/6502 version or Z-80/8080/85 version  
OS-9 version also processes FLEX object file format  
**OBJECT-ONLY versions:** EACH \$50-FLEX & OS-9, \$49-COCO DOS  
COCO DOS available in 6800,1,2,3,5,8,9/6502 version only  
**CROSS-ASSEMBLERS** EACH \$50-FLEX/OS-9, ANY 3 \$100, ALL \$200  
specify for 180x, 6502, 680x, Z-80, 8048/51, 8085, 68000  
true, modular, free-standing cross-assemblers, written in C  
8-bit source included only with all cross-assemblers (for \$200)  
**DEBUGGING SIMULATORS** EACH \$75-FLEX, \$100-OS-9  
specify 6800/1, (14)6805, 6502, 6809 OS-9, Z-80 FLEX  
**OBJECT-ONLY versions:** EACH \$50-COCO FLEX & COCO OS-9  
**6502 TO 6809 ASSEMBLER TRANSLATOR** \$75-FLEX, \$85-OS-9  
translates 6502 programs to 6809, noting inexact conversions  
**6800 TO 6809 & 6809 PIC TRANSLATORS** \$50-FLEX, \$75-OS-9  
translates 6800 programs to 6809, 6809 programs to PIC

### FULL-SCREEN FLEX TSC XBASIC PROGRAMS

(with complete cursor control)

DISPLAY GENERATOR/DOCUMENTOR	\$50 w/source, \$25 without
MAILING LIST SYSTEM	\$100 w/source, \$50 without
INVENTORY WITH MRP	\$100 w/source, \$50 without
TABULA RASA SPREADSHEET	\$100 w/source, \$50 without

**DISK AND XBASIC UTILITY PROGRAM LIBRARY** \$50-FLEX  
edit sectors, sort directory, maintain master catalog, do disk sorts, ...

**CMODEM PROGRAM** \$100-FLEX & OS-9  
menu-driven with terminal mode, file xfer, MODEM7 protocol, etc.  
**OBJECT-ONLY versions:** EACH \$50-FLEX & OS-9

**5.25" DISKS** EACH \$13-SSSD \$15-SSDD \$17-DSDD \$25-DSQD  
with jackets and hub rings

Computer Systems Consultants, Inc.  
1454 Latta Lane, Conyers, GA 30207  
Telephone Number 404-483-1717/4570

Most programs in source on disk: give computer, disk size, OS.  
Contact CSC for full catalog and dealer information.  
25% off multiple purchases of same program on same order.  
VISA and MASTER CARD accepted; US funds only, please.  
Add GSA sales tax and 5% shipping; no shipping for disks in 100's.

FLEX trademark Technical Systems Consultants. OS-9 trademark Microware.

Circle Reader Service card #214

# SUPPORT

(sə-pôrt) v.t. **1.** To bear the weight of, especially from underneath; uphold in position; keep from failing, etc. **2.** To bear or sustain (weight; etc.) **3.** To keep from failing; strengthen: *PBJ, Inc. supports their product line with technical personnel that are always there to help you.* **4.** To serve, to uphold or corroborate (a statement, theory, etc.) substantiate; verify: *PBJ, Inc. receives testimonials on a daily basis that support their product line.* **5.** To provide (a person, institution) with maintenance; provide for: *PBJ, Inc. supports the CoCo user by consistently creating new advancements in their field.*

Synonym: **PBJ, Inc.**

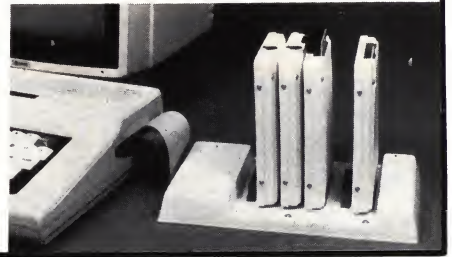
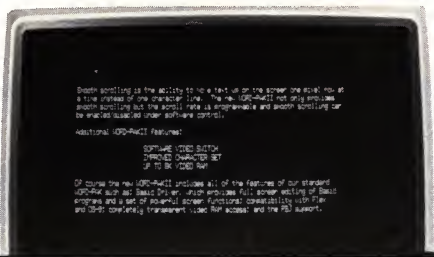
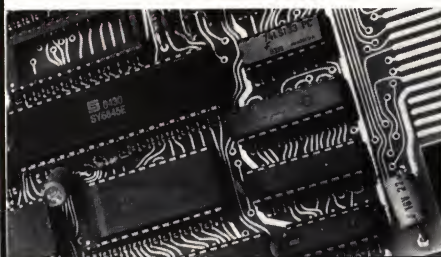
A long description indeed, yet very applicable to the kind of service delivered by PBJ, Inc. When the serious CoCo user needs back-up support, technical information or assistance, PBJ, Inc. is there! From the products they manufacture through to the strategic solutions they offer, PBJ, Inc. has rightfully gained the reputation of "the company with the most support for the Color Computer."



"Innovative Products for the CoCo User"

Call or write today for our **FREE** Catalog ...  
P.O. Box 813 • North Bergen, N.J. 07047 • **201-330-1898**

\* Derived from Funk & Wagnall's International Dictionary





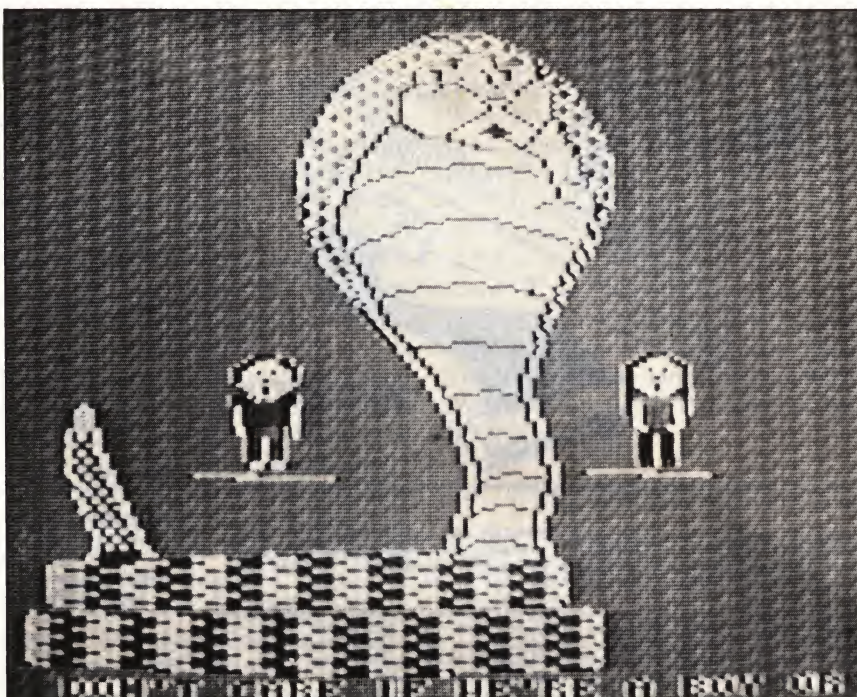
er's storybook, the interaction between reader and listener provides groundwork for an early appreciation of reading.

The storybook has some nice features, including one that lets you return to a favorite page again and again without repeating the entire story-poem. It also allows you to call up the music and poem lines separately from the menu. The graphics in the story are extremely attractive and use the Color Computer's capabilities well.

Better View a Zoo's six learning games seem well matched to the ages of the children at whom they focus. The first game lets kids find a number hidden in a jungle scene and match it by input from the keyboard. The second game uses the same scene, but it hides letters instead of numbers. The third game teaches counting skills by displaying faces of girls, boys, and tigers. Children count the faces and combinations of faces. A feature in other games, a boy appears on screen shaking his head "no" for wrong answers. For right answers, a girl's head nods "yes."

The fourth game is called Snake Slide. It teaches the directions up, down, left, and right. The game begins with a demonstration—the faces of boys and girls looking in the direction indicated by the appropriate arrow and word. Play begins with a snake sliding across the screen. A boy or girl on screen look at the snake. The child playing the game is asked either which direction the snake slid or which direction the on-screen boy or girl looked.

Tiger Hunt is the fifth game; it acquaints youngsters with alphabetical order, using sound to help them make accurate selections. The game flashes a tiger's face on the screen briefly, hidden in rows of the alphabet. Players



*Snake Slide from Better View a Zoo by Sunburst*

press a letter on their keyboard for the row in which they saw the tiger. A correct response elicits a roar from the tiger. A guess two letters away from the correct letter receives two tones; a guess one letter away gets one tone. The game allows players three tries to find the tiger.

The last game is called Around the Zoo and is a maze game that lets children use the arrow keys to visit 12 animals in a zoo. The names of the animals are printed on the screen to provide familiarity with the words. But the primary goal of the game is hand-eye coordination. If children become too heavy-handed with the arrow keys, they "bump" into one of the maze's walls. Nine bumps free the tiger from his lair, ending the game. This

was my son's favorite game, but younger children might find it a little frustrating—it requires a fair degree of dexterity.

## Error Handling and Documentation

I could not find any situation that might present problems to children or adults. Nothing happens if a child pushes the wrong key or takes a long time to answer. And keys that are supposed to work, do.

Sunburst has provided excellent documentation, in keeping with the overall quality of the package. The directions are clear, concise, and accompanied by pictures of screen displays. The manual clearly states teaching objectives, and the program fulfills them very well. Teachers using Better View a Zoo will find helpful the section that suggests follow-up activities. A section for parents provides further ideas.

## Summary

The Better View a Zoo designers were very conscious of their audience; the program is easy for young children to use. Parents and administrators might be put off by its \$55 price tag, but the package gives you six different activities in addition to an animated story-poem. Better View a Zoo is a high-quality program with a lifetime guarantee (it is freely replaced, even if you damage the disk) that is well worth the investment. ■

## OS-9\* SOFTWARE

**SDISK**—Standard disk driver module. Allows the use of 40 or 80 trk single/double-sided drives with coco OS-9, plus you gain the ability to read/write/format the standard OS-9 disk formats used on other OS-9 systems.—**\$29.95**

**SDISK + BOOTFIX** — To create BOOTABLE double sided disks.—**\$35.95**

**Filter Kit #1**—Perform "wild card" directory lists, copies, etc.—**\$29.95**

**Filter Kit #2**—Macgen and 9 other programs—**\$29.95**

**Hacker's Kit #1**—Disassembler and memory dump/load utilities—**\$24.95**

Terms: Prepaid by check, MO, VISA, Mastercard, or COD. Add \$1 S&H, COD add \$3. Send SASE for current catalog.

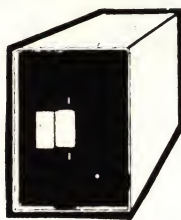
**D.P. Johnson** 7655 SW Cedarcrest St., Portland, OR 97223  
(503) 244-8152 (we appreciate your calling only 9-11 am PST)

\*OS-9 is a trademark of MICROWARE and MOTOROLA, INC.



## DISK DRIVES

### DRIVE 0 \$249.



DRIVE 1 \$169.

## KEYBOARDS

Keytronics Keyboard \$69.

## MEMORY

64K (8) CHIPS \$45. 

## PRINTER ADAPTER

PARALLEL PRINTER ADAPTER \$ 50.

Southwestern Digital

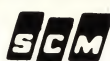
1-713-480-3296

2515 W. Main #337, Houston, Texas 77098

Ordering Information:

All prices reflect a pre-made discount for cash, Visa, MasterCard. Orders are at regular price, add \$

Mail your payment directly to us or call your order in today. All non-certified funds are held for proper clearance.



## DAISY WHEEL

### New Smith Corona L-1000

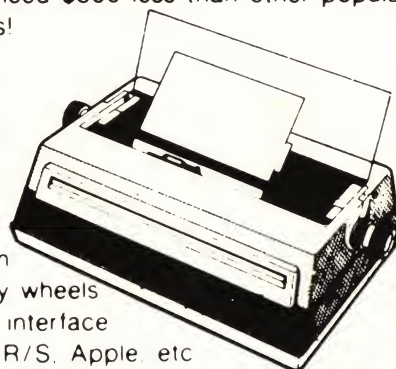
True letter quality printer for less than the cost of an office typewriter! Priced \$500 less than other popular daisy wheel printers!

SALE PRICE:

**\$269**

### FEATURES:

- ★ Friction feed
- ★ 15 cps, 120 wpm
- ★ Changeable daisy wheels
- ★ Parallel or serial interface
- ★ Compatible with R/S, Apple, etc



SUNLOCK SYSTEMS

4217 Carolina Ave.

Richmond, Va. 23222

### ADDITIONAL PRINTER SPECIALS

Epson	Okidata	Comrex II	\$389	Citoh 8510	\$329
RX80 \$239	ML82 \$299	Comrex III	629	Citoh F10	899
80FT+ 299	ML83 519	Gemini 10X	269	Citoh 1550	519
RX100 399	ML84 629	Gem.PrType	329	Okimate 20	149
FX80+ 429	ML92 359	Gem.Radx10	519	Sv.Reed 550	449
FX100+599	ML93 569	Gemini 15x	379	LQ 1500	1039
JX 80 579	ML182 229	Sv.Reed 500	379	Zen Monitor	99

**TO ORDER CALL TOLL FREE 800-368-9191**

In Virginia call 804-321-9191

We accept MasterCard, Visa and CODs

### Sugar Software

Tim's Utility	11.75
Rainbow Screen Machine	22.75
Super Screen Machine	33.75
Auto Run	15.75
Semigraf 32K	15.75
Tim's	20.75
Tim's Mail	15.75
Bible Stories	21.75
Great USA	15.75
Prereader	15.75
Presidents of the US 16K	19.75
Flying Tigers 16K	19.75
Syntax Stories	8.75
Silly Syntax	16.75
Radio System Design	22.75
Co-Co Calligrapher 32K	19.75
Statgraf 32K	20.75

### Mark Data

Trekboer 32K	19.75
Tut's Tomb 32K	19.75
Time Fighter	19.75
Glaxons	19.75
Shenanigans 32K	19.75
Sea Search 32K	19.75
Calixto Island 32K	19.75
Black Sanctum 32K	19.75
Zookey Typing Tutor	19.75
Super Bug	23.75
Super Screen	23.75
Easy File 32K-Disk	47.75
Accounting System 32K-Disk	79.75
Order Entry System 32K-Disk	79.75

## Quality Software!

### Prickly-Pear Software

To Preserve Quandic	29.75
2 Disks-32K	
Gravitor	18.75
Compleat Enchanter 32K	18.75
Viking II 32K	18.75
Color Disk Trivia	22.75
Question Disk - Choose From	14.75
History • Science & The World	
Movies & TV • Sports	
The Written Word	
Question Disk	7.50
When Purchased With Game	
Travelin' Toad 32K	18.75
Ockywocky 32K	18.75
Light Runner	18.75
Jumbo Jet	18.75
Fantasy Gamer's Pack	22.75
Adventure In Wonderland 32K	18.75
Decipher	18.75
Erland 32K	18.75
Flight	18.75
Gangbuster	18.75
Monsters & Magic 32K	18.75
Naked Gamer	18.75
TeeeeOff	18.75
Viking	18.75
Tape To Disk	18.75
Varalyzer 64K	26.75
Oracle II Tape	26.75
Disk Zapper 64K	26.75
Clone Master Tape-32K	29.75
Color Kit	26.75
Tape Omni Clone Tape	22.75
Super Scroll 64K	18.75

### Prickly-Pear Software

Rom-Free 64K	18.75
Modem Master 16K	18.75
Liz Pack 32K	145.00
Statistical Analysis 8 Disks	
Family Income Organizer (Disk)	22.75
Colorcal	18.75
Super Astrology 32K	18.75
Music Reader	26.75
Phonics 1 or 2 (Tape Only) Each	18.75
Prereader 1, 2 & 3	18.75
Spelling	37.75

### Saguaro Software

See Our Other Ad  
In This Issue

### Tom Mix Software

Sailor Man 64K	23.75
Worlds Of Flight 32K	23.75
Chambers 32K	19.75
Warehouse Mutants	19.75
Draconian 32K	21.75
Quix 32K	19.75
elec*TRON	19.75
Space Shuttle 32K	22.75
SR-71 32K	22.75
Touchstone 32K	21.75
Cu*Ber 32K	21.75
Buzzard Bait 32K	21.75
Vocab Mgmt. System	31.75

### Petrocci Freelance

Guillotine	7.75
Alphabet Song	8.75
Chalkboard Math	15.75
123's, ABC's	
Big Bigger-Biggest, Shapes	19.75
Medical Terminology	14.75
Telepatch 64K Disk Only	14.75
Demon 64K	26.75
(Edasm Graph Ed, Music Ed)	
Adventure Game Decoder	11.75
Super Disk Utility (Disk) 32K	23.75
Astro Cast 32K	23.75
Family	11.75
Super Bowling Secretary 32K	19.75
Stress Evaluator	19.75
Weather Pro 32K	19.75
Weather Watch	19.75
Philatelic Mgmt	23.75
Disk Only 32K	
Inspector Clueseau	14.75
Bond Yield	17.75
Master Graphics	
Tool Kit	29.75

Add \$3.00 For Disk, \$6.00 For Amdek

### \$1.00 SHIPPING!

We'll Ship Your Order To  
Anywhere In The USA  
For Only \$1.00

Send For Our Catalog

# Saguaro Software



24 HOUR ORDER LINE

**602-623-3321**



7331 E. BEVERLY DRIVE • TUCSON, AZ. 85710

AZ. Residents Add 7% Tax • Add \$1.00 Shipping • COD \$2.00 Additional

Dealer Inquiries Invited • Some Quantities Limited

**AUTHORS! ASK ABOUT OUR ROYALTY PROGRAM**



# Doctor ASCII

by Richard E. Esposito

*Having technical difficulties? Consult the Doctor for an answer. Due to the volume of mail Doctor ASCII receives, we cannot guarantee that your query will be published. Please send a self-addressed, stamped envelope with all letters to Doctor ASCII c/o HOT CoCo, Pine St., Peterborough, NH 03458.*

**Q** I know you can damage an older Color Computer by inserting or removing a ROM pack while the computer is turned on. Is this true of my CoCo 2? Is there a good reference on undocumented 1.1 ROM routines? I have seen two tape-based terminal programs with download buffers in excess of 50K. Since Color and Extended Basic consume 16K, how do they do it?—*Bennett D. Shulman, Lansing, MI*

**A** Since the CoCo 2 does not bring out 12 volts to the ROM-pack port, the danger is diminished, but it is still a good idea not to connect or disconnect anything to or from your CoCo while it is on.

*Hot CoCo* published a 10-part series beginning in the October 1983 issue called "Journey to the Center of the ROM," by Mark D. Goodwin. The series included a disassembler. Spectral Associates (3418 South 90th St., Tacoma, WA 98409) sells *Color Basic Unravelled* for \$19.95. Specify which ROM version you want if you order the book.

There are two ways to achieve the 50K buffer: You could write the program to only run in RAM not using the ROM routines, or you could write the program to swap the upper 32K RAM in and out with the ROMs whenever needed. The swapping technique is more common, and it allows the CoCo to support up to 96K.

**Q** Computer magazines are speckled with abbreviations and acronyms that newcomers find unintelligible. Is there a dictionary available to help us out?—*John Baster, Belleville, Ontario*

**A** An excellent book, *Computer Fundamentals for an Information Age*, by Gary Shelley and Thomas Cashman, Anaheim Publishing Co., has just been published. It is filled with color pictures and contains explanations of hardware, software, and their interrelationship; careers in computing; a 17-page glossary; and just about anything a newcomer to computing would like to know. Best of all, its information is up to date. There is a multitude of similar books that were outdated before they reached publication. Librarians take note; this book is a must for your collection.

**Q** What is the difference between single- and double-density disks?—*Bob McPhail, Comox, British Columbia*

**A** A single-density drive stores information at the rate of 2,768 bits per inch, while a double-density drive stores informa-

tion at 5,876 bits per inch. Single-density disks cannot handle the CoCo's higher recording density.

**Q** Where can I buy an EPROM eraser?—*Edgar Poulin, Sherbrooke, Quebec*

**A** Jameco Electronics, 1355 Shoreway Road, CA 94002 sells one for \$79.95.

**Q** When using Extended Basic with graphics in PMODE 4, I can copy only a portion of the original screen with a PCOPY 1 to 5. Why?—*Steve Warrick, Peru, IL*

**A** The PCOPY command copies in 1,536-byte blocks. The CoCo's memory is divided into eight pages of 1,536 bytes each. Do not confuse these pages with screens. A PMODE 4 screen consists of four pages of memory. To accomplish a complete copy of a PMODE 4 screen, you need four PCOPY commands:

PCOPY 1 TO 5:PCOPY 2 TO 6:PCOPY 3 TO 7:PCOPY 4 TO 8

**Q** One way of converting programs written for the 1.0 and 1.1 Extended Basic ROMs to work on the 1.2 ROM is to add the line:

FOR K = 341 TO 345:POKE K,255:NEXT K

before the IF statements that PEEK the keyboard rollover table. However, this solution causes programs to run slower. Replacing the above loop with `A$ = INKEY$` also works, but much faster. I discovered this by accident. Why does it work?—*Barry Hornstein, Burlington, NY*

**A** If no key is down at the moment the `INKEY$` function is executed, the table is reset. Thanks for passing along the information.

**Q** I need information on the J & M disk controller. I'd like to buy a double-sided, double-density, 80-track disk drive. Can I use it with this controller? If not, is there software that will access all 80 tracks? Is it possible to use the Radio Shack drive to copy Radio Shack-format files to an 80-track drive? Can I use Telewriter-64 with OS-9?—*Peter Hahne, Berlin, West Germany*

**A** The J & M controller (J & M Systems, LTD., 137 Utah NE, Albuquerque, NM 87108) should work fine with the drives you want, but note that Radio Shack's DOS uses only 35 tracks on one side while JDOS uses 40 tracks on two sides. For double-sided drives, you need a cable without missing teeth at the connection to the non-Radio Shack drives.

Flex uses all 80 tracks, both sides. OS-9 with the appropriate patches will, too. (As supplied by Radio Shack, it is set up for 35-track, single-sided drives.)

I use a 40-track drive as drive 2 to copy files to my 80-track drives 0 and 1 all the time. To use Telewriter-64 with OS-9, you would



**DISK**  
**\$44.95**

**NEW**

Introducing The "Super Smart"

## DATA PACK II

### TERMINAL COMMUNICATIONS SOFTWARE

Also Supports The PBJ 80 Column "Word Pak", Deluxe RS-232 Pak,  
Parallel Printer Card and PBJ 2SP Pak

#### "FEATURES"

- No Lost Information When Using Hi-Resolution Display On Line
- ASCII Compatible File Format
- Full Text Buffering
- Terminal Baud Rates 300 to 9600
- Automatic Word Wrap Eliminates Split Words
- Full/Half Duplex
- Automatic File Capture
- Programmable Word Length, Parity and Stop Bits
- Save and Load Text Buffer and Program Key Buffers to Tape or Disk
- 9 Hi-Resolution Display Formats, 28 to 255 x 24
- True Upper/lower Case Display
- Kill Graphics Option for an Extra 6K
- Supports Line Break

- Freeze Display and Review Information On Line
- Send Files Directly from Buffer or Disk
- Full Disk Support for Disk Version
- Send Control Codes from Keyboard
- Separate Printer Baud Rates 110-9600
- Display on Screen or Output Contents of Buffer to Printer
- Automatic Memory Sense 16-64K
- 9 Programmable Function Key Variable Length Macro Buffer
- Programmable Prompt Character or Delay to Send Next Line
- Programmable Control Character Trapping
- Programmable Open/Close Buffer Characters
- Automatic Key Repeat For Editing
- Program and Memory Status Displays

**TAPE**  
**\$34.95**

9 Unlimited  
Variable Length  
Macro Key Buffers

BUFFER  
EDITOR  
Insert, Delete  
Change or Add  
To Buffer

**NEW!!!**

### ANNOUNCING The CBASIC COMPILER

Now anyone can create fast efficient Machine Language Programs  
without the Drudgery of using an Assembler.

**NEW!!!**

CBASIC is a fast Machine Language integer Basic Compiler that can convert Color Basic programs into fast machine language programs. CBASIC features over 100 Basic Commands and functions that fully support Disk, Tape, Screen and Printer I/O. Hi & Low Resolution Graphics, Sound, Play and String Operations just like Color Basic. CBASIC also includes a powerful full featured Basic program Editor using a 51,64 or 85 by 24 line display. The Hi-Resolution display can be automatically included in your compiled program for enhanced display capability and allow mixed text and graphic displays.

**Graphics Commands:** CIRCLE, COLOR, CLS, DRAW, GET, LINE, PAINT, PCLS, PCOPY, PMODE, PRESET, PSET, PUT, RESET, SCREEN, SET, POINT, PPOINT

**Sound Commands:** PLAY, SOUND

**String Functions:** CHR\$, LEFT\$, MID\$, RIGHT\$, LEN, INSTR, LSET, RSET, TRIM\$, STR\$, STRING\$, INKEY\$, MKNS

**Numeric Functions:** ABS, POS, TIMER, RND, ASC, TAB, CAL, JOYSTK, PEEK, POKE, LOC, LOF, EOF, FREE, CVN, ERR, VARPTR, SWAP

**I/O Commands:** OPEN, CLOSE, INPUT, LINEINPUT, PRINT WRITE, PRINT @, GET, PUT, KILL, CHAINM, FIELD, DATA, READ, RESTORE

**Program Control:** FOR/NEXT/STEP, GOTO/GOSUB, IF/THEN/ELSE, RETURN, STOP, RETI, ON n GOTO/GOSUB, ON ERROR, ON RESET, ON IRQ/FIRQ/NMI, ON OVR/NOVR, EXEC, LET

**Directives:** ORG, REM OR', END, DIM, END, BASE, RAM, ON/OFF, RAM64K, HIR, GENERATE, DPSET, STACK

**Editor Commands:** LINE EDIT, AUTO EDIT, COPY, MOVE, RENUMBER, AUTO LINE#, PRINTER, LIST, DELETE, SEARCH, REPLACE, BAUD RATE, PRINTER, CBASIC, TAPPEND, SKIP, SIZE, LOAD, SAVE, APPEND, KILL, DIR, and much, much more.

REQUIRES 32K and Disk. 64K recommended

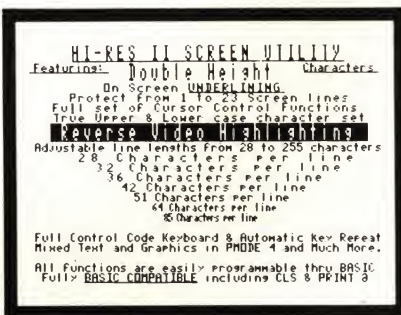
**Introductory Price \$119.00**  
Regularly \$149.00

# HI-RES II SCREEN UTILITY

## NEW IMPROVED VERSION

- UP TO 85 CHARACTERS PER LINE READABILITY
- ADJUSTABLE AUTOMATIC KEY REPEAT
- PROTECT 1-23 SCREEN LINES
- CONTROL CODE KEYBOARD

- FULLY BASIC COMPATIBLE
- DISPLAY FORMATS OF 28 TO 255 CHARACTERS PER LINE
- FULL 96 UPPER/LOWER CASE CHARACTERS
- MIXED GRAPHICS & TEXT OR SEPARATE GRAPHIC & TEXT SCREENS
- INDIVIDUAL CHARACTER HIGHLIGHTING
- REVERSE CHARACTER HIGHLIGHT MODE
- WRITTEN IN FAST MACHINE LANGUAGE
- AUTOMATIC RELOCATES TO TOP OF 16/32K
- AUTOMATICALLY SUPPORTS 64K OF RAM WITH RESET CONTROL
- REVERSE SCREEN
- ON SCREEN UNDERLINE
- DOUBLE SIZE CHARACTERS
- ERASE TO END OF LINE
- ERASE TO END OF SCREEN
- HOME CURSOR
- BELL TONE CHARACTER
- HOME CURSOR & CLEAR SCREEN
- REQUIRES ONLY 2K OF RAM
- COMPATIBLE WITH ALL TAPE & DISK SYSTEMS



**\$24.95** TAPE **\$29.95** DISK

ALL ORDERS SHIPPED FROM STOCK  
ADD \$2.50 POSTAGE

**CER  
COMP**

5566 RICOCHET AVENUE LAS VEGAS, NEVADA 89110

**(702) 452-0632**

Circle Reader Service card #335

#### Screen Enhancement Program Comparison Chart

PROGRAM FEATURES	HI-RES II NEW	HI-RES I OLD	BRAND X
Upper/Lower case characters	Yes	Yes	Yes
Mixed Text and Graphics	Yes	Yes	Yes
Separate Text & Graphics	Yes	Yes	No
Print @ fully implemented	Yes	Yes	Yes
Print @ on all line lengths	Yes	Yes	51 only
Different line lengths	28 to 255 (9)	28 to 255 (9)	51 only (1)
Automatic Key Repeat	Yes	Yes	No
Adjustable Key Repeat	Yes	No	No
Auto Repeat Disable	Yes	No	No
Erase to end of line/screen	Yes	Yes	Yes
Home Cursor	Yes	Yes	Yes
Solid or Blinking Cursor	Yes	No	Yes
CLS command supported	Buff/Black	Buff/Black	Buff/Black
X,Y Coordinate Cursor	Yes	Yes	No
Positioning	Yes	Yes	No
Double Size Characters	Yes	Yes	No
Individual/Continuous	Yes	Yes	No
Highlighting	Yes	Yes	No
On Screen Underlining	Yes	Yes	No
Clear Key functional	Clear/L keys	Clear key	No
16,32 & 64K Supported	Yes	Yes	Yes
Green or Black Background	Yes	No	No
Color	Yes	No	No
Dual Character sets for Enhanced 64 and 85	Yes	No	No
Characters per line display	Yes	No	No
Protected Screen Lines (programmable)	1 to 23	No	No
Full Control Code Keyboard for Screen control directly from the keyboard	Yes	No	No
Programmable Tab Character	Yes	No	No
Spacing	Yes	No	No
Full Screen Reverse Function	Yes	Yes	No
Switch to & from the Standard 16 by 32 Screen for full compatibility	Yes	No	No
On Error Goto Function	No	No	Yes
Extended Basic Required	No	Yes	Yes
All Machine Language Program	Yes	Yes	Yes
RAM Required in addition to Screen RAM	2K	2K	2K
Program Price (Tape)	\$24.95	\$19.95	\$29.95



VISA, MASTERCARD AND C.O.D. ACCEPTED



have to disassemble and reassemble it in position-independent code and rewrite all the I/O routines. I suggest you try Stylograph or DynaStar.

**Q** What is the difference between a serial and a parallel interface? Where can I get etching solution?—*Tom Schwenk, East Hampton, NY*

**A** A serial interface sends data one bit at a time. A parallel interface sends data a byte at a time over eight parallel paths. Etching solution is listed in the 1985 Radio Shack catalog as number 276-1535 for \$2.49.

**Q** What do you do when your recorder won't record or load long programs? I have a one-year-old GE computer recorder.—*Jeff Landriits, Mustand, OH*

**A** Try cleaning and demagnetizing your recorder's head if it worked before. If it never worked, try a Radio Shack recorder. It is also possible that your cassette motor relay is going bad.

**Q** I have a silver F-board CoCo with a white Radio Shack drive. Is there any truth to the rumor that I'll have trouble if I try to add a second drive? When I enter POKE 25,6:NEW, it plays havoc with my disk system. What's wrong?—*Phillip J. Walsh, Moultrie, GA*

**A** No. The newer white disk systems work with all CoCos. The older silver systems work only with silver CoCos or CoCo 2's with the Multi-Pak Interface. The older drive controllers need 12 volts, which is not available on the CoCo 2's edge connector.

When you get your new drive, move your old drive 0 to the drive 1 position; it has a terminating resistor. Your new drive becomes drive 0.

Disk Basic uses 2K of memory in the graphics area, which is wiped out by the POKE. Try POKE 25,14:POKE &HE00,0:NEW.

**Q** At what memory location do I find the text screen under OS-9? Is there a way to EXEC a program from within Basic-09?—*Wayne Deviney, Mt. Vernon, WA*

**A** The text screen corresponds to the addresses 46080 to 46591. You can access machine-language procedures from Basic-09 via the SHELL or RUN commands.

**Q** I have a problem with a Basic program. After loading it and typing "RUN", it bombs. But after pressing the reset button and running it again it works fine. What's the problem?—*Ian Harris, New South Wales, Australia*

**A** You have stumbled across a bug in Extended Basic 1.0. When a PCLEAR statement is executed, the Basic program is moved to the new end of graphics memory. The 1.0 Basic ROM loses track of the next statement to be executed after the move. To get around this, your PCLEAR statement must be followed by a reverse-referencing GOTO. For example:

```
1 GOTO 3
2 GOTO 10
3 PCLEAR 6
4 GOTO 2
10 (main body of program)
```

## Reader's Forum

Continued from p. 79

### Program Listing 2. Padpatch

```
380 ON S GOSUB 2900,2900,530,780
,2900,2900,2900,2900,2900,2900,2
900,890,2900,2900,2900,954
954 GOSUB 2890
955 IF S=15 THEN 954
956 GOSUB 2910
957 RETURN
2905 'X-PADPATCH TO STORE GRAPHI
CS TO TAPE OR DISK BY B.BALLARD
2910 'FOR RS"MENU"PROGRAM-CHANGE
LINE 380-ADD LINES 954-957 AND
2905-2986
2911 SCREEN0,0:CLS:PRINT@390,"cA
SSETTE OR disk?":PRINT@422,"aBOR
T"
2912 RS=INKEY$:IF RS<>"C" AND RS
<>"D" AND RS<>"A" OR RS="" THEN2
912
2913 IF RS="C" THEN2916
2914 IF RS="D" THEN 2961
2915 SCREEN 1,CS:RETURN
2916 SCREEN 0,0:CLS:PRINT@234,"s
```

```
AVE OR LOAD?"
2917 IO$=INKEY$:IF IO$<>"S" AND
IO$<>"L" AND IO$="" THEN 2917
2918 IF IO$="S" THEN 2920
2919 IF IO$="L" THEN 2931
2920 CLS:PRINT:LINEINPUT" FILE
NAME: ";FS
2922 PRINT:LINEINPUT" PRESS rec
& play THEN enter";SS
2924 MOTORON:FOR=1TO1000:NEXT:C
SAVEMF$,PEEK(186)*256,PEEK(183)*
256+PEEK(184),&HE00
2925 PRINT:PRINT" "FS" SAVED
TO CASSETTE"
2926 SCREEN 1,CS
2927 RETURN
2931 CLS:PRINT:LINEINPUT" FI
LE NAME: ";FS
2932 PRINT:PRINT" READY TAPE
-PRESS PLAY":PRINT:LINEINPUT"
PRESS enter TO CONT";LS
2934 SCREEN 1,CS:CLOADM FS
```

```
2935 RETURN
2961 SCREEN0,0:CLS:PRINT@234,"sA
VE OR LOAD?"
2962 IO$=INKEY$:IF IO$<>"S" AND
IO$<>"L" AND IO$="" THEN 2962
2964 IF IO$="L" THEN 2982
2968 SCREEN0,0:CLS:PRINT:LINEINP
UT" FILE NAME: ";FS
2970 PRINT:LINEINPUT" READY DI
SK-PRESS ENTER ";RS
2972 SAVEMF$,PEEK(186)*256,PEEK(
183)*256+PEEK(184),&HE00
2974 SCREEN 1,CS:RETURN
2982 SCREEN0,0:CLS:PRINT:LINEINP
UT" FILE NAME: ";FS
2984 PRINT:LINEINPUT" LOAD DIS
K-PRESS ENTER ";RS
2986 LOADMF$:SCREEN1,CS:RETURN
```

END



# Why do more CoCo owners choose 'REAL TALKER'?

*Sure it's priced right, but there's more...*

Thousands of 'Real Talker' owners know 'Real Talker' beats ALL other Coco voice synthesizers in ease of use and flexibility. And, NO other Coco talker has a clearer, more intelligible voice. That's quite a lot of advantage when you consider Real Talker's unbeatable price. Yet, Real Talker has some important features that you simply will not find in other Coco talkers:

**'SAY'** command - You'll have your computer talking brilliantly in just minutes thanks to this powerful new command. Type SAY "ANYTHING YOU WANT" and your words are instantly spoken. It's that simple. Think how easy this makes creating speaking Basic programs. Adding speech to your existing programs is a snap too.

**'CONVERT'** - This is a truly powerful command for the basic programmer. CONVERT automatically transforms a machine language dependent speaking program into a stand-alone Basic program. In other words, you can effortlessly write speaking Basic programs that do not require a machine language translator in memory. This is a unique feature of 'Real Talker'. No other voice synthesizer gives you anything even remotely approaching this type of capability - even synthesizers costing considerably more.

Other features include software controlled pitch, unlimited vocabulary text-to-speech, and even a program that will recite any ASCII file (such as from Telewriter-64 & other word processors). You also get Colorware's unique full-screen phoneme editor program that let's you experiment with and modify speech at it's most fundamental level.

'Real Talker' is compatible with any 16K, 32K, 64K Extended or non-extended Color Computer. It works with any cassette or disk system and comes complete and ready to talk through your T.V. or monitor speaker. Price includes the 'Real Talker' electronic voice synthesizer in a ROM pack, software on cassette (may be transferred to disk), and user manual.



*'Real Talker' is a full-featured electronic voice synthesizer unit built into a compact cartridge case. You simply plug it into the side of your computer.*

**NOW INCLUDED WITH 'REAL TALKER'.....**

1. **'DR. TALK'**-This interactive "Eliza" type psychoanalyst program will discuss your innermost problems at length.
2. **'TALKING BATTLESHIP'**-It's you vs. the computer in this speaking version of the classic game.
3. **'TALKING BLACKJACK'**- Play for big stakes against a rather talkative casino dealer.

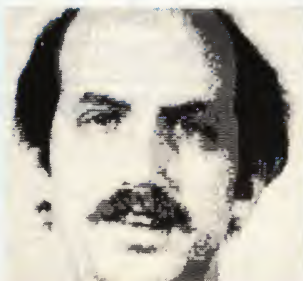
**ONLY  
\$59.95**

**'REAL TALKER-1'** (for the original Color Computer).....\$59.95  
**'REAL TALKER-2'** (for the Color Computer-2).....\$64.95  
**'Y - BRANCHING CABLE'** For disk systems. If you have a disk system but do not have a Radio Shack Multi-Slot unit, this economical cable will allow to connect and use your Real Talker and Disk system together.....27.95

**CALL TOLL FREE (800) 221-0916**

## TALKHEAD

If you have a 'Real Talker', do not deprive yourself of this absolutely incredible machine-language Talking Head simulation program. While other talking head simulations use a minimal cartoon-like face, TALKHEAD uses high resolution, full-screen, digitized images of an actual person's face to create a life-like animated effect.



### SOFTWARE FOR THE 'REAL TALKER'

TALKHEAD can be easily commanded in Basic to appear on screen and say anything you want. Available on cassette or disk for only \$19.95, TALKHEAD requires 64K and a Colorware 'Real Talker'.

**ONLY \$19.95**

ACTUAL UNRETOUCHED PHOTO



**COLORWARE INC.**  
 78-03B Jamaica Ave.  
 Woodhaven, NY 11421  
 (718) 647-2864



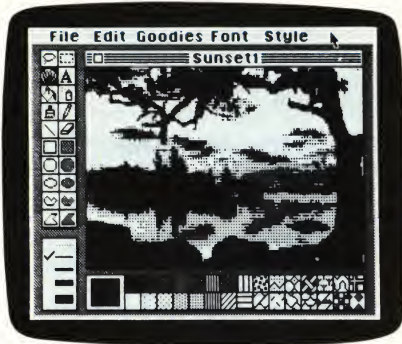
### ★ ★ ★ ORDERING INFORMATION ★ ★ ★

ADD \$2.00 PER ORDER FOR SHIPPING & HANDLING.  
 C.O.D.'S: ADD \$3.00 EXTRA.  
 SHIPPING & HANDLING FOR CANADA IS \$4.00  
 WE ACCEPT VISA, MASTER CARD, M.O.'S, CHECKS.  
 N.Y. RESIDENTS MUST ADD SALES TAX.



# CoCo Max

*This is one of those rare programs that will captivate everyone in your family.... No one can see CoCo Max and not want to try it!*



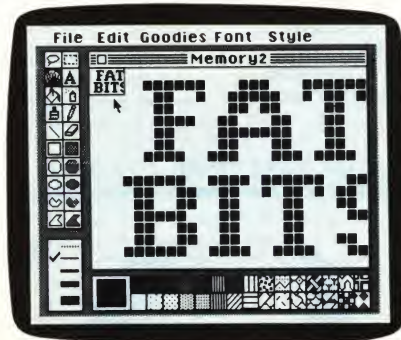
We are all witnessing an exciting revolution in microcomputers: a radically new kind of computer and software that opens a whole new world of creative power to computer users.

It was inevitable that this exciting approach would be brought to the CoCo. With this in mind, Colorware chose to go all out and maximize this new concept for the color computer. That meant designing not just software but hardware too. It meant thousands of hours of pure machine language programming. Rarely has this much effort been applied to one product for the Color Computer.



## UNMATCHED CAPABILITY...

Because we took the maximum approach: highly optimized machine code combined with hardware, CoCo Max truly stands above the rest as the ultimate creative tool for the Color Computer. Its unrivaled performance lets you create with more brilliance and more speed than any similar system — much more than you ever imagined possible. And, you can do it in black & white or color.



All the sophisticated power of the bigger systems is there: *Icons, Pull-Down Menus*, full *Graphic Editing, Font Styles*, and all kinds of handy tools and shortcuts.

Plug your joystick, mouse or touch pad into CoCo Max's Hi-Res Input Unit. Then use a delightfully simple *Point-and-Click* method to get any of CoCo Max's powerful graphic tools. It has them all:

You can *Brush, Spray* or *Fill* with any *Color, Shading* or *Pattern*. Use *Rubber Band Lines* and *Shapes* (square, rectangle, circle, ellipse, etc.) to create perfect illustrations with speed and ease. There's a *Pencil*, an *Eraser* and even a selection of *Calligraphy Brushes*. And, as you can see, CoCo Max can do a lot with text. All of the newest special effects are there: *Trace Edges, Flip, Invert, Brush Mirrors*, etc. And all of the very latest super-capabilities like: *Undo*, which automatically reverses your mistakes, and *Fat Bits* which zooms you way in on any part of your subject to allow dot-for-dot precision.



## THE BIG PICTURE

The large image box in the middle of the CoCo Max screen is actually only a window on an even larger image. Use the Point-and-Click "Hand" to effortlessly move your window over any portion of the larger image. You have a working area of up to 3-1/2 times the area of the window itself.

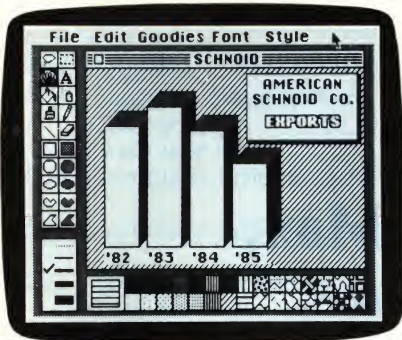
## FLEXIBLE PRINTING...

CoCo Max gives you many ways to print. Fill a whole page with your image or condense two full CoCo screens to less than 1/4 page for a finely detailed copy. "Dump" your CoCo Max screen full size or shrink it to 1/8 page size.



## FREEDOM TO CREATE...

Anyone who wants to create anything at all on their CoCo screen or printer will certainly be very glad to meet CoCo Max. CoCo Max's friendly yet sophisticated graphic and text capabilities let you almost instantly produce illustrations, diagrams, charts,



graphs, and computer art – for serious use or just for creative fun.



tion by using software schemes such as sliding windows. Although clever, these schemes yield sluggish and awkward results. Only CoCo Max does it the right way. The CoCo Max Hi-Res Input Unit plugs into your ROM slot and adds an entirely new joystick input to your computer – a precision one with a 49,152 point resolution to match the CoCo screen exactly.

Plug your same joystick, mouse or touch

You may then use CoCo Max's graphic magic on it. The DS-69 is available as an option from Colorware from \$149.95 complete with its own software on disk or tape. Using the DS-69 with a disk requires an RS multi-pak adaptor.



## COCO MAX REQUIREMENTS

The CoCo Max System includes the Hi-Res Input Unit, software on disk or cassette (please specify) and user manual. It will work on any 64K Extended or non-

# THE COCO MAX SYSTEM

## AN ABSOLUTE GUARANTEE

CoCo Max is a hardware software system that no software-only system can match. Get CoCo Max and see your CoCo perform as it never could before. If you don't agree that CoCo Max is the ultimate creative tool for the Color Computer, simply return it within 20 days for a full, courteous refund from Colorware.

## THE HARDWARE...

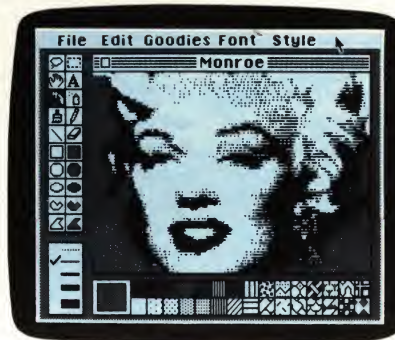
This is the key to CoCo Max's unmatched performance. Did you know the normal joystick input built into the Color Computer only allows access to 4,096 (64 x 64) points on the CoCo screen? Yet, the Color Computer's high resolution screen

pad into this new input and you have a whole new kind of control. The difference is remarkable.



## A DIGITIZER OPTION...

We studied all the video digitizers available and picked the best of them to link with CoCo Max. The DS-69 from Micro Works was our choice. This optional device lets you capture the image from any video source (video recorder, camera, etc.) on your Color Computer.



extended Color Computer. You'll need a Radio Shack or equivalent joystick, mouse or touch pad. Disk systems require a Multi-Slot Interface or Y-Branching Cable.

**THE COMPLETE COCO MAX SYSTEM,** with software on **DISK**.....\$69.95

with software on **CASSETTE** (Available Mar '85).....\$69.95

**Y-BRANCHING CABLE**—If you have a disk system but do not have a Multi-Slot Interface, use this economical 40-pin, 1 male, 2 female cable to connect the CoCo Max Hi-Res input unit and your disk controller to your CoCo.....\$27.95



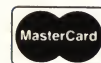
has 49,152 (256 x 192) pixels. This means that a joystick, mouse or even a touch pad can, at best, only access about one tenth of the pixels on the CoCo screen.

Most graphic programs ignore this hardware limitation of the Color Computer and give you only low-res control. Others attempt to overcome the limita-



**TOLL FREE ORDER LINE:**  
**(800) 221-0916**

**Colorware Inc.**  
**78-03B Jamaica Ave.**  
**Woodhaven, NY 11421**  
**(718) 647-2864**



## ORDERING INFORMATION

ADD \$3.00 PER ORDER FOR SHIPPING AND HANDLING.  
C.O.D.'S ADD \$3.00 EXTRA.  
SHIPPING AND HANDLING FOR CANADA IS \$5.00  
WE ACCEPT VISA, MASTER CARD, M.O.'S, CHECKS.  
N.Y. RESIDENTS MUST ADD SALES TAX.



# PRODUCT NEWS

by J. Scot Finnie

## Here Comes Infocom, New Math Software, CoCo Max, Trivia, DataLOG, and More.

Information printed in the Product News section is supplied by manufacturers. *HOT CoCo* has not tested or reviewed the products discussed here and cannot guarantee manufacturers' claims.

More and more software companies are recognizing that the Color Computer has a loyal following. Some of the software becoming available includes offerings from Infocom's heady world of text adventure and Imagic's visually pleasing arcade-style games. Recently Sunburst has added several educational programs to its Color Computer fold. Other well known software companies are expected to follow suit.

### Infocom and Imagic

In February, Product News reported that two Infocom games, *The Hitchhiker's Guide to the Galaxy* and *Suspect*, were already available from Infocom. They were slated to be on the market by the

time the February issue of *HOT CoCo* was in print. Infocom did not release them because Tandy's Home Education Systems Division (T.H.E.S.) is negotiating to license them along with several other Infocom titles.

*Sea Stalker*, a junior-level Infocom game that runs on the Color Computer, has already been licensed by T.H.E.S. So far, however, it is available only as part of a large package of hardware and software in selected areas of the country. The folks at T.H.E.S. assured us that individual T.H.E.S. software products will be available as soon as they can organize a catalog and an ordering system. The process could take several months because they are still in negotiation. In the meantime, be patient.

Tandy has recently licensed two Imagic programs: *Dragonfire* and *Demon Attack*. They are scheduled to be released sometime in the next several months. Imagic is well known in the industry for the many fine programs it has created for Atari computers and others. Frank Ellis, software developer for Imagic, expressed interest in converting more of the company's programs to the Color Computer. He asked me which Imagic programs I thought

were best suited to the Color Computer market. All of them, Frank!

### Mathematical Mindset

A reader called the other day to lament what until recently has been a lack of intermediate- and higher-mathematics software for the Color Computer and to ask how to get in touch with MatheGraphics Software. A product announcement appeared in the February Product News for the company's new algebra and calculus programs with an incorrect telephone number. The correct number for MatheGraphics is 516-368-3781.

Dr. Sheldon Gordon of MatheGraphics talked in a telephone conversation about the role of educational higher-mathematics programs. He notes that although the elementary-school market is well developed, high-school- and college-level programs are harder to find.

According to Dr. Gordon, the Color Computer market is one of the first to explore intermediate and advanced mathematics because grassroots software in these areas is being developed for the CoCo by students and teachers. "The first priority of this new market is structured classroom use," he states. "At the same time, however, it is fun

to be able to turn students loose, to tell them: 'Go find something interesting—see what happens when you vary this, that, or the other.' "

MatheGraphics just released two new programs: **Graphing Lines in Algebra** and **Coordinate Defense**. Graphing Lines in Algebra is a package of drill-and-practice programs that uses high-resolution graphics to help students master the principles of graphing lines in either, elementary or secondary algebra. It sells for \$35. Coordinate Defense costs \$25 and is a game-style, pre-algebra program that teaches the coordinates in a plane. They are available on disk or cassette and require 16K and Extended Color Basic.

MatheGraphics isn't the only company to jump into this market, however. Ankia Research recently announced several higher-mathematics programs for the Color Computer. **Function Finder** is a curve-fitting program; it finds a closed-form function that best fits your data set. **Calculus** performs numeric differentiation and integration by Gaussian quadrature or Simpson's method. **Equation Evaluator** solves polynomial equations of any order by finding real or imaginary solutions. **Matrix Math** can add, subtract,



Reader Service Number	Page Number	Reader Service Number	Page Number	Reader Service Number	Page Number
60	Aleph Unlimited . . . . .	61	*	D.P. Johnson . . . . .	80
325	Bacchus Computer Systems . . . . .	19	273	Draco Software . . . . .	77
335	Cer-Comp . . . . .	83	216	EAP Company . . . . .	92
121	Cognitec . . . . .	15	23	ENG Labs . . . . .	49, 79
126	Cognitive Development . . . . .	91	24	Four Star Software . . . . .	77
*	Colorware . . . . .	85, 86, 87	455	Hard Drive Specialists . . . . .	96
18	Computer Plus . . . . .	7	440	HJL Products . . . . .	CIV
506	Computer Systems Center . . . . .	4	*	HOT CoCo Back Issues . . . . .	63
507	Computer Systems Center . . . . .	73		Dealer Sell . . . . .	29
223	Computer Systems Consultants . . . . .	79		Foreign Dealer . . . . .	19, 43
75	CoCo Devices . . . . .	29		HOT CoCo Subscriptions . . . . .	9
536	Cybertron . . . . .	61		Instant CoCo . . . . .	64
*	Dataman . . . . .	23		Mailing List . . . . .	91
*	Dayton Assoc. of W.R. Hall . . . . .	33		Moving . . . . .	73
243	Deft Systems . . . . .	3	91	Toll Free # . . . . .	27, 55
397	Delker Electronics . . . . .	48	328	Subscription Problems . . . . .	63
209	Dorsett Educational Systems . . . . .	95	101	University Micro . . . . .	61, 92
			190	Incentive Software . . . . .	60
			*	J.B. Carvaly . . . . .	67
				J & M Systems . . . . .	27
				JBM Group . . . . .	41
				Mark Data Products . . . . .	17
			196	Micro Works . . . . .	59
			361	Micron Technology . . . . .	55
			337	Nibble Notch Computer Products . . . . .	63
			214	PBJ, Inc. . . . .	63
			124	Perry Computers . . . . .	55
			222	Professor Jones . . . . .	19
			4	Radio Shack . . . . .	CIII, CII, 1, 11, 12, 93
			70	Saguaro Software . . . . .	81
			160	Saguaro Software . . . . .	35
			*	Software Support . . . . .	68, 69
			454	Southwestern Digital . . . . .	81
			456	Sunlock Systems . . . . .	73, 81
			230	Synergetic Solutions . . . . .	27
			236	T & D Software . . . . .	67
			386	TCE Programs . . . . .	29, 91
			342	Tesseract Software Systems . . . . .	23
			342	THINC Tech Hardware . . . . .	43
			93	True Data Products . . . . .	38, 39
			*	White House Computer . . . . .	66

Advertising Offices: (603) 924-7138 or (800) 441-4403

\*This advertiser prefers to be contacted directly. For further information from our advertisers, please use the Reader Service card.

## COMING NEXT MONTH

Your Color Computer can create sounds in many ways. Next month, we'll show you a couple you might not have thought of.

Not all sound must be programmed. Why not use your tape recorder? Robert Gault's "Dawn at the Crossing Gate" will demonstrate how to coordinate recorded sound and animation for a fascinating effect.

Tape is one sound-storage medium; your CoCo's memory is another. In May, Jeff Rubidge's sound digitization program will break down your voice or favorite song into binary code and store it in a buffer. Your CoCo then reads the code and reproduces the sound precisely. You won't believe the results.

We'll also review Colorware's venerable Real Talker voice synthesizer along with their new Talkhead speech-animation program. And speaking of reviews, Jeffrey Parker wraps up his in-depth

comparison of disk-based smart-terminal software.

May holds something for the business minded, too. Robert Eisman's "Closed for Inventory" will show you how your CoCo can track your wares in stock.

For family fun or educational purposes, Kenneth Raymond's "Match and

Learn" tests your skills in pairing related items. And Bob Gaebler will have an exciting utility for programmers: a Basic-variable documenter. This program not only tells you where to find variables in a Basic listing, but it also categorizes them and gives their values as the listing runs.

See you in May. ■





and multiply matrices and calculate the determinant and inverse of square matrices. These programs work on 16-64K CoCos with Extended Color Basic. They sell separately for \$12.95 and for \$44 as a package.

## Business Beat

The Softlaw Corporation, maker of the VIP library of business and personal productivity software for the Color Computer, has changed its name to VIP Technologies because of strong identification in the CoCo marketplace with the VIP name.

Ankia Research surfaces again this month with its release of **Proprietor's Accountant**, a double-entry system for home or small business. The disk-based package can handle up to 100 accounts. It keeps a journal and ledger with summaries, including trial balance, profit and loss, and a balance sheet with output to a printer or screen. *Proprietor's Accountant* costs \$29.95 and requires 32K, a disk drive, and Extended Color Basic.

**Making Money with Your Home Computer**, by Dana K. Cassell, is a book from Dodd, Mead and Company that helps you put your computer to work. It covers software, mailing lists, records, word processing, on-line research, programming, business procedures, and many other work-at-home topics. The book is available by mail or phone for \$5.95 plus \$1.50 postage.

**The College Student's Personal Computer Handbook** from Sybex shows students how to bear up under heavy college course loads by using a computer. Author Brian Pfaffenberger, a college professor, presents a complete study method covering everything from hardware to note taking. The 210-page softcover sells for \$14.95 plus \$2 if ordered directly.

## Ones to Watch

What has more than 95 percent of the features of Macpaint for Apple's Macintosh? It's **CoCo Max**, the new graphics program from Colorware. In the last few months the Color Computer market has been deluged with new paint programs



*The Amateur Radio Logbook from DataLOG*

—some of them very good. But CoCo Max is offering some features the others don't; for example, responsive high resolution (matching the CoCo's 256 by 192 pixels) with joystick, mouse, or graphics tablet. Colorware President Jack Knott emphasizes the long research that went into this hardware/software package. If CoCo Max is as good as its billing, it's likely to be a new standard for measuring graphics programs on the Color Computer. CoCo Max is available on disk or cassette and costs \$69.95 for the complete hardware/software package.

**The CBasic Compiler** is a program that can help you cre-

ate machine-language software on your 32-64K CoCo. The compiler has more than 100 Basic commands and functions that fully support disk, cassette, screen and printer I/O, high- and low-resolution graphics, sound, and string operations that are 99 percent compatible with Disk Extended Color Basic. CBasic was designed for use with a disk drive; it sells for \$149 with manual from Cer-Comp.

Ever wish your private-club or special-interest bulletin board could restrict access to its members only? The **Ideal Host** from Titan Software limits access to computer operators with the proper passwords and iden-

tification numbers. Titan also offers **Teleremote Executive**, which permits business people in the field to gain full remote control of an Ideal Host System. Contact Titan for more information.

## Games and Diversions

Ankia Research is popping up all over this month with several new releases. The company is selling three new games: **Strategy Football**, **Strategy Politics**, and **Strategy Investing**. Each requires fancy brainwork instead of quick reflexes to solve complex strategy situations. The games sell for \$16.95 each and require Extended Color Basic.

Perhaps you are more interested in games of valor or fantasy. Brian J. Murphy, a frequent contributor to *Incider*, *Creative Computing*, and other magazines, is a connoisseur of game strategies and tactics. He has written a book for computer wargame, fantasy, and adventure players called **Sorcerers and Soldiers**. Among other aspects, the book focuses on the mental habits that players need to develop—whether they are battling the Luftwaffe over London or searching out treasure guarded by magical gnomes—in order to succeed. *Sorcerers and Soldiers* is a 226-page softcover that sells for \$9.95 from Creative Computing Press.

All but trivia is trivial, you say? How about a book of lists about computers? **The Computer Book of Lists** describes who uses computers, how they were once and are now used, and the things you can do with them. It contains interesting computer facts illustrated in the form of lists of computer people, magazines, topics, applications, users groups, and so on. A list for lists: Among other things, this book has its own index. *The Computer Book of Lists* sells for \$14.95 and is published by Reston Publishing Company.

B. Erickson has released a trivia game for the Color Computer called **Trivia-1**. It's a trivia game for the tube that keeps you at the CRT. One to eight players can try Trivia-1, which has nearly 800 questions.



*CoCo Max from Colorware*



# ATTENTION SUBSCRIBERS

We occasionally make our mailing list available to other companies or organizations with products or services which we feel might be of interest to you. If you prefer that your name be deleted from such a list, please fill out the coupon below or affix a copy of your mailing label and mail it to:

CW Communications/Peterborough

HOT CoCo

P.O. Box 975

Farmingdale, NY 11737

Please delete my name  
from mailing lists sent  
to other companies or organizations.

name \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

HOT CoCo

## HEROES & TROLLS

### A THRILLING MATH FACTS GAME

- COLOR • SOUND
- ACTION



Math drill in an exciting action game. Players go on a heroic mission to free a royal family held in a maze by invisible trolls who spring into view when heroes get too close. Beware of the snorting dragon with three lives. The game is propelled by doing arithmetic drill at any of three levels of difficulty. Two players can each select a different skill level and a different math function, to make the game fair. With only one player, the computer plays as an opponent of average skills. Program requires 32K Extended Color Basic. Reviewers praise it; kids love it.

Tape or Disk: \$29.95 (Money-back guarantee.)

### COGNITIVE DEVELOPMENT CO.

*fun things for the mind*

Suite 141, 12345 Lake City Way NE  
Seattle, WA 98125  
(206) 382-6661

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

☐ Enclosed is my check for \$29.95

Charge my ☐ Visa, or ☐ Mastercard

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

## Parents! Want to stimulate your child's learning?

### TCE'S EARLY LEARNING SERIES

#### ABC'S In Color

Speed your child's learning of the Alphabet!

CoCo 16K ECB Tape \$19.95 Disk \$25.95

#### Mr. Bear Count

A counting program that will tantalize the youngest member of your family!

CoCo 16K Tape \$15.95 Disk \$19.95

#### Alpha Memory

Your child can master the lower and upper case letters of the alphabet while having fun!

CoCo 16K Tape \$16.95 Disk \$20.95

#### Mr. Bear Math

Add & subtract with Mr. Bear. Your child will gain Mr. Bear's wink of praise & approval!

CoCo 16K Tape \$15.95 Disk \$19.95

Over 75  
Titles!

#### Basic Math

Learn to add & subtract through counting!

CoCo 16K ECB Tape \$12.95 Disk \$16.95

#### Mix & Match

A brilliantly colored constantly moving computer version of concentration!

CoCo 16K Tape \$12.95 Disk \$16.95

#### Mr. Bear Flash Card

After your child has mastered Mr. Bear Math, continue his/her learning, experience with Mr. Bear's multiplication & division flash card.

CoCo 16K Tape \$15.95 Disk \$19.95

#### See & Spell

Let your computer aid your child in learning to spell!

CoCo 16K ECB Tape \$14.95 Disk \$18.95

#### Teaching Clock

Learn to tell time with the aid of a special teaching clock!

CoCo 16K ECB Tape \$16.95 Disk \$19.95

#### Mr. Piggy

Program will aid your child in learning the value of money!

CoCo 32K ECB Tape \$19.95 Disk \$24.95



Programs Have Been Child, Parent, & Educator Tested!

Send for  
FREE Catalog

TCE EDUCATION DIVISION  
P.O. BOX 2477  
GAITHERSBURG, MD 20879

(301) 963-3848

Circle Reader Service card #387





## PRODUCT NEWS

The game sells for \$25 and runs on 16K CoCos.

DataLOG Software is releasing what is called the first in a series of ham-radio software products. The **Amateur Radio**

**Logbook** program features database record keeping for storing up to 1,550 QSOs (connections) in a two-drive system, and 800-1,000 in a one-drive system. A notable feature of the

program is its on-line approach to log entry. When you enter a call sign, the computer scans the entire log and seconds later reports whether or not you have previously "worked the sta-

tion." DataLOG also offers add-on software that expands the logbook's capabilities. The program sells for \$29, plus \$2 for shipping. ■

### Addresses of Manufacturers

Ankia Research  
901-19 Indiantown Rd., Suite R  
Jupiter, FL 33458  
*Reader Service* ✓ 550

B. Erickson  
P.O. Box 11099  
Chicago, IL 60611  
*Reader Service* ✓ 551

Cer-Comp  
5666 Ricochet Ave.  
Las Vegas, NV 89110  
702-452-0632  
*Reader Service* ✓ 552

Colorware Inc.  
78-03F Jamaica Ave.  
Woodhaven, NY 11421  
800-221-0916  
*Reader Service* ✓ 553

Creative Computing Press  
One Park Ave.  
New York, NY 10016  
212-686-6959  
*Reader Service* ✓ 554

DataLOG Software  
P.O. Box 10531  
Jacksonville, FL 32247  
904-398-7933  
*Reader Service* ✓ 555

Dodd, Mead and Company  
Dept. CDH, 79 Madison Ave.  
New York, NY 10016  
800-251-4000  
*Reader Service* ✓ 556

Imagic  
981 University Ave.  
Los Gatos, CA 95030  
408-399-2200  
*Reader Service* ✓ 557

Infocom  
55 Wheeler St.  
Cambridge, MA 02138  
617-492-1031  
*Reader Service* ✓ 558

MatheGraphics Software  
61 Cedar Road  
East Northport, NY 11731  
516-368-3781  
*Reader Service* ✓ 559

Reston Publishing Co.  
1140 Sunset Hills Rd.  
Reston, VA 22090  
703-437-8900  
*Reader Service* ✓ 560

Sybex  
2344 Sixth St.  
Berkeley, CA 94710  
800-227-2346  
*Reader Service* ✓ 561

Titan Software  
508 West Ave.  
Northvale, NJ 07647  
201-768-7479  
*Reader Service* ✓ 562

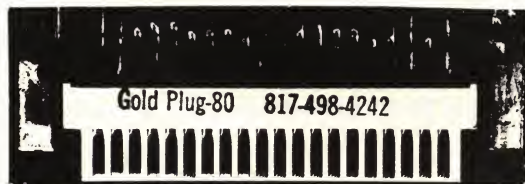
VIP Technologies  
132 Aero Camino  
Goleta, CA 93117  
805-968-4364  
*Reader Service* ✓ 563

Circle Reader Service card #216

TRS-80+ MOD I, III, COCO, T199/4a  
TIMEX 1000, OSBORNE, others

## GOLD PLUG - 80

Eliminate disk reboots and data loss due to oxidized contacts at the card edge connectors. **GOLD PLUG 80** solders to the board edge connector. Use your existing cables (if gold plated).



Ground  
tab  
extension

COCO Disk Module (2)  
Ground tab extensions  
Disk Drives (all R.S.)  
Gold Disk Cable 2 Drive  
Four Drive Cable

**new**  
**SPECIAL PRICE**

\$16.95  
INCL  
\$7.95  
29.95  
39.95

USA shipping \$1.45

Foreign \$7.

Don't wait any longer

Can/Mex \$4.

TEXAS 5% TAX

Available at your favorite dealer or order direct from



**E.A.P. CO.**  
P.O. BOX 14  
KELLER, TEXAS 76248



(817) 498-4242

MC/VISA

+ trademark Tandy Corp

**This Publication  
is available in  
Microform.**



**University Microfilms  
International**

Please send additional information

for \_\_\_\_\_

Name \_\_\_\_\_

Institution \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, MI 48106



# CONTROL LIGHTS AND APPLIANCES 24 HOURS A DAY AUTOMATICALLY

## Program the Household Controller Using Your Color Computer 2

Our Appliance/Light Controller is an incredible device that makes your life easier. It can wake you to a TV or stereo, brew your coffee in the morning, pre-cool a room in the afternoon, start dinner before you leave work, and hundreds of other chores—all automatically. You can even outsmart a burglar by making

your home look and sound lived in day and night.

Simply connect the Controller to your Color Computer, and enter the desired times and events. Disconnect the Controller and your computer is free to use as you wish. Then, connect lamps and appliances to Plug 'n Power™ modules (sold separately) and plug the modules into wall outlets. The Controller sends on/off signals over your home's electrical wiring.

Get the Appliance/Light Controller (26-3142, \$99.95) at Radio Shack today—and computerize your home for improved security, convenience and energy savings.

**Radio Shack®**  
**The Technology Store™**

A DIVISION OF TANDY CORPORATION  
Circle Reader Service card #4

Prices apply at participating Radio Shack stores and dealers.



**Send Me a New 1985 Computer Catalog!**  
Mail To: Radio Shack, Dept. 85-A-952, 300 One Tandy Center, Fort Worth, Texas 76102

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_



# The Learning Page

“**T**he Color Computer uses the 6809E chip. . . did you know that three computers in the Space Shuttle use this same chip?” Brian D. Sherman, district computer education advisor for the Saratoga Springs, NY, City School District, often uses this question when introducing the CoCo to new users.

Dennis Peterson, computer education and science teacher at St. Michael's, a parochial school in Prior Lake, MN, rates the Color Computer as “the most cost-effective teaching computer in the world today.” Both of these gentlemen oversee Network II Color Computer labs within their school systems.

## St. Michael's School

A Network II system consists of a master computer unit and a number of “slave” units, made up of a keyboard and a monitor or television set. Peterson's school uses 12-inch black-and-white TV sets for its 12 slaves. St. Michael's School has 320 students in grades K-8, and students in grades 4-8 use computers regularly. The emphasis for this program is on the grade 6-8 group where students spend half a year each year learning about computers. Students in grades 4 and 5 work with computers for one hour each week. This is St. Michael's first year with the Network system and so far, Peterson is “very pleased” with the results.

The curriculum begins with the idea that students should know how to type as a fundamental skill for school and later life. They learn word processing along the way during the first nine weeks of the course. Software programs used in this curriculum are a combination of purchased software, original programs, and programs taken from magazines such as *HOT CoCo*. During the second quarter of the year, students meet Basic and Logo and begin to attack programming.

“Next year, I hope to introduce the students to other programming languages and give them some exposure to the types of software used in real-world business systems, like filing programs and spreadsheets,” says Peterson. A

## NETWORK II IN OUR SCHOOLS

*by Nancy Kipperman*

19-year teaching veteran, he is on leave from Our Lady of Grace School in Edina, MN, and has found exploring new opportunities in computer education fascinating.

Students at St. Michael's have access to the computer lab after school during the week. This time can be used to play computer games, figure out a programming problem, or write a composition. Some do their homework on the computer and print it on the printer attached to the main computer. Programs can be sent from one slave station to another through the main computer so that two students can share a problem while working on separate keyboards. “It's interesting to watch the peer group interaction as students work to find the solution to a problem or a simulation exercise,” comments Peterson.

He anticipates other teachers in the school eventually using the computer lab for a variety of activities like makeup work assignments, special drill and tutorial programs, and both math and real-life problem solving, as they become more comfortable with its capabilities.

## Saratoga Springs, NY

Sherman's position is different from that of classroom instructor, as he is responsible for coordinating the use of computers at the elementary level in Saratoga Springs. The six elementary schools (K-6) in his district each have a Network II lab with from eight to thirteen CoCos. At the junior high level, grades 7-9, CoCos reside in the English lab where they are used for creative writing and word processing and in the resource lab where they are used mainly as motivational tools for students who have learning problems in a normal setting.

The computer literacy program in Saratoga Springs is a system-wide effort. Students in grades 4, 5, and 6 learn some Basic and apply it to problem solving in mathematics, English, and simulation problems. Fifth graders use a database program and word processing. Software is a combination of manufactured, original, and magazine programs. Sherman will soon be able to boast more than 200 pieces of software in each of his six elementary schools.

The Saratoga Springs program has required extra effort from teachers in the form of inservice courses and workshops. Teachers can request that software be purchased for specific objectives in the curriculum. Teachers and administrators can preview software packages, as does Sherman, to make sure that they fit the needs of the students. As software is purchased, one backup copy is made and kept in Sherman's office, with care taken not to violate copyright laws. “I have utilities to transfer cassette to disk and vice versa,” he says.

“Our CoCo labs are used by all of our general staff,” comments Sherman. “We piloted the Network II program in the 1983-84 school year. Then the staff reevaluated and redesigned the program and we offered the inservice courses. In addition to the computer literacy curriculum, students in the junior high school use the computer labs during study halls via a pass system. The CoCo serves more students at less cost.”

## Need to Know

What is your school system doing in the area of computer literacy? Do you know what computers are available to students and how they use them? Are computers integrated into the school curriculum as in Saratoga Springs or are they separated in a computer education lab as at St. Michael's? The more educated you become to what is happening with computers in your community and what is possible with computers in education, the more influence you, as a teacher or parent, will have on your child's future and, in turn, your own. ■



AVAILABLE  
NOW FOR

IBM PC Jr.

For Your TRS-80 Color Computer

Apple • Atari • Commodore • TRS 80 I, III, 4 & Color

## DORSETT EDUCATIONAL SOFTWARE PASSES THE COST- EFFICIENCY TEST!

For computer assisted instruction, our software more than passes the test...it EXCELS! With **over 1000 educational programs\*** designed specifically to concentrate learning for all users, from kindergarten level to advanced individual studies, from slow learners to exceptionally bright students, you'll get positive results with our quality, economically-priced courseware.

\* 500 Programs Available for TRS 80 Color; 400 for IBM PC Jr.

DORSETT Classroom A Room #1

*Excellent Work! (A+)*

PROGRAMS OFFER	OTHER BRANDS				
	DORSETT	A	B	C	D
1. FULL TIME AUDIO NARRATION	Blue				Red
2. SYNTHESIZED, ROBOTIC VOICE		Red			
3. MULTIPLE CHOICE QUESTIONS	Blue		Yellow		Red
4. CLEAR GRAPHICS	Blue			Green	
5. NUMBER OF COURSES			Yellow		
6. VARIETY OF PROGRAMS					Red
7. SELF-PACED PROGRAMS	Blue			Green	
8. PROGRAM LENGTH		Red			
9. COMPATIBILITY	Blue		Yellow		
10. YEARS IN EDUCATION	Blue				
11. PRICE PER PROGRAM	\$3.75*	\$14.95	\$19.95	\$29.95	\$32.50

DORSETT COURSEWARE IS COMPATIBLE WITH  
IBM PC Jr., TRS 80, I, III, 4, COLOR, APPLE, ATARI  
& COMMODORE COMPUTERS.  
\*PRICE PER PROGRAM IN A 16-PROGRAM SERIES.



## Interactive Tutorial Programs

Over 1000 Programs with Full Time Audio Narration, Pictures & Text!

We're Your Educational  
Software Source for Grades  
K-12 and Advanced Studies

Course	No. of Programs
Reading	256
Mathematics	128
Comprehension	48
History	32
Algebra	16
Spelling	16
Government	16

16 Programs in each of the following:

Children's Tales - Carpentry - Electronics - Health Services - Office Skills - Statistics - First Aid/Safety - Economics - Business - Accounting - Psychology - AND MANY MORE!

Dealer Inquiries Welcome

For your Atari 400/600/800/1200, you will need the Atari Cassette Recorder and the Dorsett 4001 Educational Master Cartridge, \$9.95. For your Apple II, you will need the Dorsett M402 T/T plug-in board, \$99.00, and the M401 stereo cassette player, \$79.00. All programs listed are available for TRS 80 I, III, 4, which require the M203 speaker converter, \$99.00, and 401 stereo cassette player, \$79.00. For the PC Jr. a cassette adapter cable and a good cassette recorder is required. A Radio Shack CCR-81 or CCR-82 is recommended. \$59.00 for an album containing a 16-program course (8 cassettes with 2 programs) each at \$3.75 per program). \$8.80 for a 2-program cassette.

Send for a catalog of over 1000 programs for Atari, TRS 80, Apple, IBM PC Jr., Commodore, etc.

For more information, or to order call:

**TOLL FREE 1-800-654-3871**

IN OKLAHOMA CALL (405) 288-2301



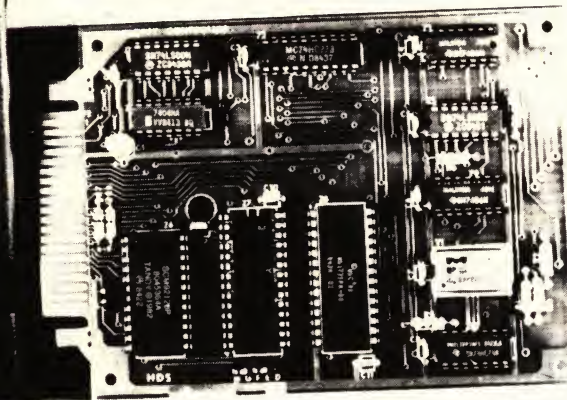
**DORSETT**  
Educational Systems, Inc.  
Box 1226, Norman, OK 73070



Circle Reader Service card #209



## 2nd Generation !!!!! HDS Floppy Drive Controller Board



AS SEEN AT THE RADIO SHACK  
COMPUTER SHOWCASES

### Features\*

- \* Gold Plated Edge Cards
- \* Dual Selectable ROM Sockets
- \* No POTS to adjust
- \* Compatible with COCO I & II
- \* 120 Day Warranty
- \* Double and Single Density

So what's so new in our second generation? We had a lot of requests for the need to use the lessor expensive 28 pin Eproms. Our 2nd generation controller allows the useage of either (two 24pin ROMS), or (one 24pin ROM and one 28pin ROM). The second feature we added was a technical one and is not apparent to the average user. Western Digital was good enough to manufacture for us a far advanced drive controller chip, called the WD1773FDC. This chip integrates the data separation method within itself allowing the cleanest data transfer to date.

Reduce your I/O errors with the Hard Drive Specialist Floppy Drive Controller for the Color Computer. Gold Edge Card Connectors, Advanced Design, and the absence of potentiometers make this the best board available to date.

**Completed and Tested Board with  
Radio Shack ROM** ..... \$139.  
(Includes Case, and DOS Instructions)

**Completed and Tested Board  
without ROM** ..... \$119  
(Includes Case)

**Bare Board with instruction  
manual** ..... \$ 40.

**Parts Kit For Bare Board without  
ROM** ..... \$ 40.

**Radio Shack ROM** ..... \$ 20.

## New Low Prices!

### DISK DRIVE SYSTEMS

	SINGLE SIDED	DOUBLE SIDED
Drive 0 Complete .....	\$249.	\$289.
Drive 1 Complete .....	\$169.	\$209.
Drive 0 & 1 Dual Drive .....	\$399.	\$479.

64K UPGRADE KIT ..... \$39.95

### NEW ROM

HDS has licensed the ROM from Radio Shack to be able to offer alternative operating systems pre-blown ready for installation. The first of what we hope to be a wide range of options is ADOS. ADOS is a product of SpectroSystems of Miami Florida and is fully supported by the author. The HDS version of ADOS supports 2 drives, 40 track, 6ms trk-to-trk drives only, either Single Sided or Double Sided. The ADOS package comes complete with original documentation and diskette from SpectroSystems and can be installed in our Drive Controller Board at purchase time for no additional charge.

**ADOS/HDS 24 pin ROM** ..... \$ 50.  
(useable in all drive controllers on the market)

**ADOS/HDS 28 pin ROM** ..... \$ 40.  
(useable in the HDS 2nd generation board only)

### Keytronics Keyboard KB500

The Fantastic Keytronic Keyboard is now being manufactured only for Hard Drive Specialist. It is the only keyboard for the Color Computer known on the market that does not use membrane switches. The KB500 uses a capacitance foam switch. This type of switch will never give keyboard bounce and last much longer than all other types. The KB500 is also the only keyboard that will fit all versions of the color computer weather it is a A, B, C, D, E, F, ET, TDP-100, COCO IIA, or COCO IIB. One keyboard fits all with out risk of getting the wrong version, and there is no need to do any modifications to your case. Additional features include a higher spring force on the break and clear key to reduce the possibility of a disastrous key-stroke, sculptured keys, low profile, "pips" on home row keys. The "PF" function key comes with documentation and a sample program. The Keytronics/HDS keyboard list price was \$89 when it was offered through Keytronics. Our price on it is only \$69, plus \$3. for shipping.



## HARD DRIVE SPECIALIST

Circle Reader Service card #455

1-713-480-6000

Order Line 1-800-231-6671

16208 Hickory Knoll,  
Houston, Texas 77059

### Ordering Information

Use our Watts line to place your order via Visa, MasterCard, or Wire Transfer. Or mail your payment directly to us. Any non-certified funds will be held until proper clearance is made. COD orders are accepted as well as purchase orders from government agencies. Most items are shipped off the shelf with the exception of hard drive products that are custom built. UPS ground is our standard means of shipping unless otherwise specified. Shipping costs are available upon request.



# A NEW STAR IS BORN

## Out of Radio Shack's Famed Model 100 Evolves the Advanced Technology Tandy 200

Our new Advanced Technology Tandy 200 portable computer does what no other computer could.

It takes our amazing Model 100 one step further.

### Get Much More Power



A new 40-character by 16-line flip-up screen gives

the Tandy 200 improved text and graphics. The 24K memory (expandable to 72K) is great for data

storage and other big jobs, and the built-in Multiplan software makes the Tandy 200 a portable spreadsheet analysis tool.

Five other "instant-on" programs include an improved version of the Model 100 word processor, a telecommunications program, a personal calendar and a telephone and appointment file. You can even write your own programs in BASIC. And the Tandy 200's tone-dialing feature lets you use long-distance phone services.

### See It Today

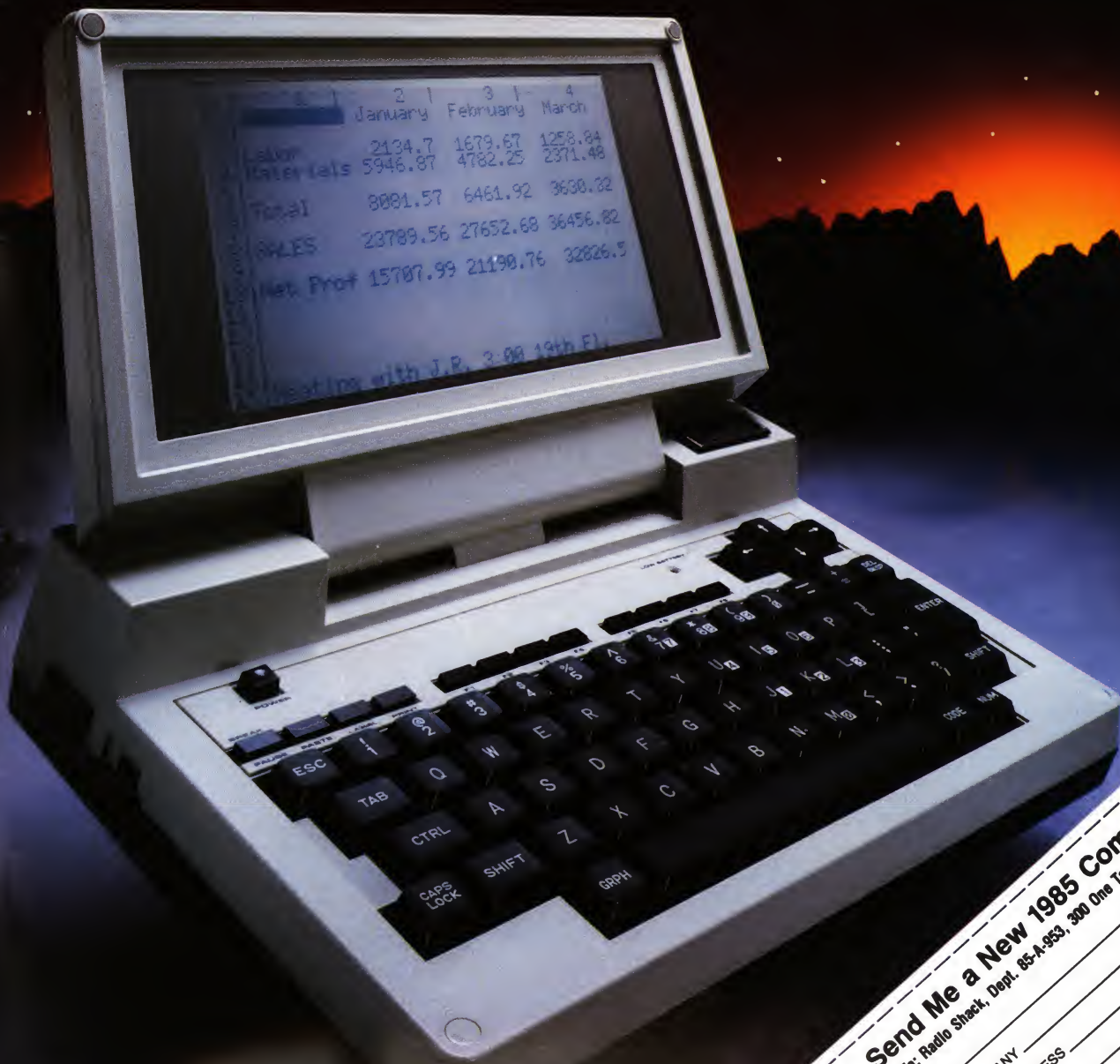
Get a hands-on demonstration of the Tandy 200 (26-3860, \$999) at any Radio Shack Computer Center or participating Radio Shack store or dealer.

**Radio Shack**  
The Technology Store™

A DIVISION OF TANDY CORPORATION

Circle Reader Service card #4

Prices apply at Radio Shack Computer Centers and at participating stores and dealers.



**Send Me a New 1985 Computer Catalog!**  
Mail To: Radio Shack, Dept. 85-A-953, 300 One Tandy Center, Fort Worth, Texas 76102

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_



# The HJL-57 Keyboard

Now available for all models,  
including CoCo 2.



## Compare it with the rest. Then, buy the best.

If you've been thinking about spending good money on a new keyboard for your Color Computer, why not get a good keyboard for your money?

Designed from scratch, the HJL-57 Professional Keyboard is built to unlock ALL the potential performance of your Color Computer. Now, you can do real word processing and sail through lengthy listings...with maximum speed; minimum errors.

At \$79.95, the HJL-57 is reasonably priced, but you can find other CoCo keyboards for a few dollars less. So, before you buy, we suggest that you compare.

### Compare Design.

The ergonomically-superior HJL-57 has sculptured, low profile keycaps; and the three-color layout is identical to the original CoCo keyboard.

### Compare Construction.

The HJL-57 has a rigidized aluminum baseplate for solid, no-flex mounting. Switch contacts are rated for 100 million cycles minimum, and covered by a spill-proof membrane.

### Compare Performance.

Offering more than full-travel, bounce-proof keyswitches, the HJL-57 has RFI/EMI shielding that eliminates irritating noise on displays; and four user-definable function keys (one latchable), specially-positioned to avoid inadvertent actuation.

### Free Function Key Program

Your HJL-57 kit includes usage instructions and decimal codes produced by the function keys, plus a free sample program that defines the function keys as follows: F1 = Screen dump to printer. F2 = Repeat key (latching). F3 = Lower case upper case flip (if you have lower case capability). F4 = Control key; subtracts 64 from the ASCII value of any key pressed. Runs on disc or tape; extended or standard Basic.

### Compare Installation.

Carefully engineered for easy installation, the HJL-57 requires no soldering, drilling or gluing. Simply plug it in and drop it right on the original CoCo mounting posts. Kit includes a

new bezel for a totally finished conversion.

### Compare Warranties.

The HJL-57 is built so well, it carries a full, one-year warranty. And, it is sold with an exclusive 15-day money-back guarantee.

### Compare Value.

You know that a bargain is a bargain only so long as it lasts. If you shop carefully, we think you will agree...The HJL-57 is the last keyboard your CoCo will ever need. And that's *real* value.

### Order Today.

Only \$79.95, the HJL-57 is available for immediate shipment for either the original Color Computer (sold prior to October, 1982) or the F-version and TDP-100 (introduced in October, 1982), and the new 64K CoCo. **Now also available for CoCo 2.**

**Call Toll Free  
1-800-828-6968**

In New York 1-800-462-4891



**PRODUCTS**

Div. of Touchstone Technology Inc.  
955 Buffalo Road • P.O. Box 24954  
Rochester, New York 14624

Telephone: (716) 235-8358

Ordering Information: Specify model (Original, F-version, or CoCo 2). Payment by C.O.D., check, MasterCard or Visa. Credit card customers include complete card number and expiration date. Add \$2.00 for shipping (\$3.50 for Canada). New York state residents add 7% sales tax. Dealer inquiries invited.